



UNIVERSITY OF CENTRAL FLORIDA

Department of Physics Annual Productivity Report Academic Year 2019 – 2020

May 8, 2019 – May 7, 2020

1. Undergraduate Program

Undergraduate Student Credit Hours Generated in 2019-2020

COURSES	TOTAL SCH
All	45,889

Summer 2019 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Cooney, Brueckner	999
AST 4912	Directed Research	(several faculty)	12
PHY 2048	General Physics using Calculus I	Flitsiyan	1024
PHY 2049	General Physics using Calculus II	Stolbov	880
PHY 2053	College Physics I	Efthimiou, Kara	1460
PHY 2054	College Physics II	Velissaris	936
PHY 4903	Honors Thesis	(several faculty)	6
PHY 4906	Honors Thesis	(several faculty)	3
PHY 4912	Directed Research	(several faculty)	41
PSC 1121	Physical Sciences		477
PSC 2955			36
TOTAL:			5,874

Fall 2019 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Cooney, Velissaris, Bruckener, Donaldson Hanna, Soileau	3348
AST 3402	Galaxies and Cosmology	Cooney	93
AST 4762	Astronomical Data Analysis	Harrington	21
GLY 2038	Environmental Geosciences	Donoghue	189
PHY 1038	Energy, Climate Change and the Environment	Colwell	321
PHY 4324	Astronomical Data Analysis	Harrington	30
PHZ 4390	Electricity and Magnitism II	Chanda	30
PHY 1935	Freshman Seminar	Al-Rawi	11
PHY 2020	Concepts of Physics	J. Chini	291
PHY 2048	General Physics using Calculus I	Neupane, Feng, Chow, Z. Chen, Argenti, Efthimiou	3684
PHY 2049	General Physics using Calculus II	Nakajima, James, Al-Rawi, Schulte, Moussa	2876
PHY 2053	College Physics I	Chow, Rahman, Dubey, Kara, B. Chen, Chamlagain	4088

PHY 2054	College Physics II	Vaida, Dove, Kang, Brueckner	3072
PHY 3101	General Physics using Calculus III	Flitsiyan, Dubey	630
PHY 3220	Mechanics I	Ishigami	114
PHY 3323	Electricity and Magnetism I	Stolbov	114
PHY 3513	Thermal and Statistical Physics	Schelling	123
PHY 3722	Physics Lab - Electronics	Velissaris	54
PHY 3802	Intermediate Physics Lab	Kaden	63
PHY 3945	Physics Pedagogy Seminar	LaMee	14
PHY 4324	Electricity and Magnetism II	Chanda	30
PHY 4424	Optics	M. Chini	21
PHY 4604	Wave Mechanics I	Klemm	96
PHY 4903	Honors Directed Research	(several faculty)	6
PHY 4912	Honors Directed Research	(several faculty)	26
PHY 4906	Honors Thesis	(several faculty)	3
PHY 4970	Honors Thesis	(several faculty)	6
PHZ 3151	Computer Methods in Physics	Stolbov	36
PHZ 3113	Theoretical Methods in Physics	Bhattacharya	75
PHZ 3150	Introduction to Numerical Computing	Karalidi	72
PHZ 3601	Einstein Theory of Relativity	Efthimiou	15
PHZ 4390	Nuclear & Particle Physics	Efthimiou	18
PSC 1121	Physical Sciences	Guthrie, Brueckner	1263
TOTAL:			20, 833

Spring 2020 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Dhalla, Karalidi, Bennett, Brueckner, Campins	2622
AST 3110	Solar System Astronomy	Dove	45
AST 4912	Directed Research	(several faculty)	6
AST 3211	Stellar Astrophysics	Cooney	63
AST 4700	EXP Methods in Astronomy	Fernandez	45
AST 4903	Honors Directed Reading	(several faculty)	3
GLY 4730	Marine Geoscience	Donoghue	96
MET 2104	The Earth's Climate	Britt	63
PHY 2048	Gen. Physics using Calculus I	Brueckner, Cooney, Z. Chen, Chernyak, Fang, Feng	3644
PHY 2049	Gen. Physics using Calculus II	Schulte, James, Nakajima, Al-Rawi, Efthimiou, Kokoouline	2956
PHY 2053	College Physics I	Colwell, Reyes, B. Chen, Dubey, Del Barco	4112

PHY 2054	College Physics II	Rahman, Vaida, Tetard, Kara, J. Chini	3452
PHY 3101	Gen. Physics using Calculus III	Flitsiyan, Dubey	570
PHY 3220	Mechanics I	Schelling	144
PHY 3323	Electricity & Magnetism	Chanda	60
PHY 3752	Physics of Scientific Instruments	Velissaris	78
PHY 3802	Intermediate Physics Laboratory	Velissaris	84
PHY 3905	Independent Research	(several faculty)	3
PHY 3945	Physics Pedagogy Seminar	LaMee	14
PHY 4324	Electricity and Magnetism II	Stolbov	66
PHY 4605	Wave Mechanics II	Klemm	90
PHY 4803	Advanced Physics Laboratory	Ishigami	51
PHY 4903	Honors Directed Reading	(several faculty)	3
PHY 4906	Honors Thesis	(several faculty)	15
PHY 4912	Directed Independent Research	(several faculty)	66
PHY 4970	Undergraduate Honors Thesis	(several faculty)	9
PHY 4971	Hon. Undergraduate Thesis II	(several faculty)	3
PHZ 3113	Intro. Theor. Methods in Physics	Bhattacharya	141
PHZ 4404	Solid State Physics	Lyakh	18
PHZ 3361	Radiation Interact & Detectors	Velissaris	27
PHZ 4624	General Relativity	Efthimiou	27
PHZ 5156	Computation Physics	Stolbov	6
PHZ 6428	Condensed Matter Physics II	Leuenberger	9
PSC 1121	Physical Science	Brueckner, Tatulian	591
TOTAL:			19,182

Physics B.S. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2015-2016	161	158
2016-2017	182	177
2017-2018	223	206
2018-2019	211	195
2019-2020	201	194

Physics B.S. Degrees Awarded in the Last Five Years

Academic Year	Summer	Fall	Spring	Total
2015-2016	2	5	15	22
2016-2017	1	4	18	23
2017-2018	3	5	17	25
2018-2019	3	4	19	26
2019-2020	5	4	26	35

Physics Undergraduate Minor Degrees Awarded in the Last Five Years

Academic Year	Summer	Fall	Spring	Total
2015-2016	1	2	3	6
2016-2017	-	4	9	13
2017-2018	2	5	2	9
2018-2019	2	6	11	19
2019-2020	4	5	7	16

Physics Honors in the Major Theses

2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
3	1	5	2	6

B.S. Degree Graduates (35 in total)

Summer 2019	Fall 2019	Spring 2020	
Michael Sedlack	Sarah Muller	Joshua Pollock	Chad Fojo
Michael Fraser	Claudia Ragosta	Connor Malley	Conner Budzinski
Jesse Randall	Patrick Baranek	Joshua Cafiero	Amanda Cochran
Nicholas Brunston	Adam Wise	Sonali Joshi	Gregory Hammock
Antonett Nunez-Delprado		Sean Touros	Geoffrey Garrido
		Charles Smith	Jamal Khayat
		Alyssa Johnson	Khadijah Wright
		Sara Demonaco	Mithil Patel
		Tyler Christensen	Nicholas Spangler
		Alexander Chioma	David Castro
		Brooke Emison	Kevin Fernando
		Matthew Reinhard	Nathaniel Twede
		Erin Crites	Joseph Walsh

2. Graduate Program

Graduate Student Credit Hours Generated in 2019-2020

COURSES	TOTAL SCH
All	1,609

Summer 2019 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST6908	Independent Study	(several faculty)	3
AST 6918	Directed Research	(several faculty)	54
AST 7980	Dissertation	(several faculty)	12
PHY 5817	Building Physics Apparatus	Peale	8
PHY 5917	Directed Research	(several faculty)	3
PHY 6908	Independent Study	(several faculty)	24
PHY 6918	Directed Research	(several faculty)	173
PHY 6971	Thesis Research	(several faculty)	9
PHY 7980	Dissertation	(several faculty)	117
TOTAL:			403

Fall 2019 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 5151	Physics Planetary Processes	Bennett	21
AST 5765	Advanced Astronomical Data Analysis	Harrington	30
AST 6918	Directed Research	(several faculty)	66
AST 6971	Thesis Research	(several faculty)	9
AST 7980	Dissertation	(several faculty)	21
PHY 5346	Electrodynamics I	Peale	51
PHY 5606	Quantum Mechanics I	Schulte	48
PHY 6246	Classical Mechanics	Fernandez	63
PHZ 6439	Interfacial Physics	Kaden	15
PHY 6600	Molecular Wave Function Theory	Masunov	6
PHY 6667	Quantum Field Theory	Klemm	39
PHY 6908	Independent Study	(several faculty)	11
PHY 6918	Directed Research	(several faculty)	129
PHY 7980	Dissertation	(several faculty)	117
PHZ 6426	Condensed Matter Physics I	Leuenberger	21
TOTAL:			647

Spring 2020 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 5263	ADV Observational Astronomy	Donaldson Hanna	21
AST 6156	Planetary Seminar	Britt	24
AST 6165	Planetary Atmospheres	Harrington	18
AST 6918	Directed Research	(several faculty)	24
AST 6971	Thesis Research	(several faculty)	6
AST 7980	Dissertation	(several faculty)	30
GLY 5736	Marine Geology	Donoghue	9
PHY 5524	Statistical Physics	Bhattacharya	54
PHY 5715	Physical Basis of Life	Tatulian	12
PHY 6347	Electrodynamics II	Peale	54
PHY 6624	Quantum Mechanics II	Schulte	45
PHY 7669	Quantum Field Theory II	Klemm	6
PHY 6908	Independent Study	(several faculty)	6
PHY 6918	Directed Research	(several faculty)	109
PHY 6971	Thesis Research		3
PHY 7919	Dissertation	(several faculty)	6
PHY 7980	Dissertation	(several faculty)	117
PHZ 5156	Computation Physics	Stolbov	6
PHZ 6428	Condensed Matter Physics II	Leuenberger	9
TOTAL:			559

Physics M.S. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2015-2016	5	5
2016-2017	5	5
2017-2018	6	6
2018-2019	8	7
2019-2020	8	8

Physics M.S. Degrees Awarded in the Last Five Years

Academic Year	Summer	Fall	Spring	Total
2015-2016	2	6	4	12
2016-2017	4	2	4	10
2017-2018	4	3	7	14
2018-2019	2	5	2	9

2019-2020	2	1	1	5
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Physics M.S. Graduates (5 in total)

Summer 2019	Fall 2019	Spring 2020
Muhammad Waqas Shabbir Leslie Davis Daniel Reinhart	Chance Barrett	Anthony Asilador

Physics Ph.D. Applications in the Last Five Years

Starting Term	Applied	Accepted	Enrolled
Fall 2015	141	47	19
Fall 2016	149	26	23
Fall 2017	131	36	16
Fall 2018	96	33	14
Fall 2019	189	21	24
Fall 2020	173	40	(18 expected)

Physics Ph.D. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2015-2016	93	82
2016-2017	92	88
2017-2018	85	86
2018-2019	89	91
2019-2020	99	94

Physics Ph.D. Degrees Awarded in the Last Five Years

Academic Year	Summer	Fall	Spring	Total
2015-2016	4	9	4	17
2016-2017	4	3	7	14
2017-2018	4	3	5	13
2018-2019	4	2	6	12
2019-2020	2	2	5	9

Physics Ph.D. Graduates (9 in total)

Summer 2019

Seth Calhoun, *Room Temperature VOx Air-Bridge Bolometer Integrated with Metal-Insulator-Metal Resonant Absorbers*
(Advisor: Robert Peale)

Nabin Kandel, *Molecular basis of membrane pore formation by amyloid beta peptide*
(Advisor: Suren Tatulian)

Fall 2019

Tao Jiang, *Catalytic Properties of Defect-Laden 2D Material from First-Principles*
(Advisor: Talat Rahman)

Priyanka Vaidya, *Sub-Terahertz Spin Pumping from an Insulating Antiferromagnet*
(Advisor: Enrique Del Bardo)

Spring 2020

Brandon Blue, *Atomic scale processes and electronic band structure engineering in thin layered materials*
(Advisor: Masahiro Ishigami)

Ryan Challener, *Exoplanets: Correlated Noise and Cautionary Tales*
(Advisor: Joseph Harrington)

Sima Gholam Mirzaeimoghadar, *Symmetry and High Harmonic Spectroscopy in Solids*
(Advisor: Michael Chini)

MD Mofazzel Hosen, *Discovery of new topological quantum materials by photoemission.*
(Advisor: Madhab Neupane)

Stephanie Jarmak, *Experimental and Numerical Investigations of Granular Dynamics in Microgravity*
(Advisor: Joshua Colwell)

GTA Contracts Processed (in units of 0.50 FTE) in the Last Five Years

Academic Year	Summer	Fall	Spring
2015-2016	19	37	35
2016-2017	16	40.5	42
2017-2018	16.5	39	39
2018-2019	16	43	41
2019-2020	18.33	45	40.5

GRA Contracts Processed (in units of 0.50 FTE)

Academic Year	Summer	Fall	Spring
2015-2016	33.5	36	31.5
2016-2017	39	44	36
2017-2018	40.5	37	35
2018-2019	52	46	45
2019-2020	52.20	50	47.5

3. Department Personnel

Core Physics Faculty (57)

Ahlam Al-Rawi <i>Associate Lecturer</i>	Joseph Donoghue <i>Associate Professor</i>	Duy Le <i>Scientist</i>
Luca Argenti <i>Assistant Professor</i>	Adrienne Dove <i>Assistant Professor</i>	Michael Leuenberger <i>Professor</i>
Christopher Bennett <i>Assistant Professor</i>	Archana Dubey <i>Associate Lecturer</i>	Weili Luo <i>Professor</i>
Aniket Bhattacharya <i>Professor</i>	Costas Efthimiou <i>Associate Professor</i>	Arkadiy Lyakh <i>Assistant Professor</i>
Daniel Britt <i>Pegasus Professor</i>	Li Fang <i>Assistant Professor</i>	Zoe Landsman <i>Lecturer</i>
Thomas Brueckner <i>Lecturer</i>	Xiaofeng Feng <i>Assistant Professor</i>	Eduardo Mucciolo <i>Professor and Department Chair</i>
Humberto Campins <i>Pegasus Professor</i>	Yan Fernandez <i>Professor</i>	Yasuyuki Nakajima <i>Assistant Professor</i>
Debashis Chanda <i>Associate Professor</i>	Elena Flitsiyan <i>Associate Lecturer and Undergraduate Program Director</i>	Madhab Neupane <i>Assistant Professor</i>
Zenghu Chang <i>University Trustee Chair, Pegasus, and Distinguished Professor</i>	Joseph Harrington <i>Pegasus Professor</i>	Robert Peale <i>Professor</i>
Bo Chen <i>Associate Professor</i>	Masahiro Ishigami <i>Associate Professor</i>	Talat Rahman <i>Pegasus and Distinguished Professor</i>
Zhongzhou Chen <i>Assistant Professor</i>	Michael Johnson <i>Professor and College Dean</i>	Patrick Schelling <i>Associate Professor</i>
Leonid Chernyak <i>Professor</i>	William Kaden <i>Assistant Professor</i>	Alfons Schulte <i>Professor</i>
Jacquelyn Chini	Ellen Kang	Sergey Stolbov

<i>Assistant Professor</i>	<i>Assistant Professor</i>	<i>Associate Professor</i>
Michael Chini <i>Assistant Professor</i>	Abdelkader Kara <i>Professor and Graduate Program Director</i>	Suren Tatulian <i>Professor</i>
Lee Chow <i>Professor</i>	Theodora Karalidi <i>Assistant Professor</i>	Laurene Tetard <i>Associate Professor</i>
Joshua Colwell <i>Pegasus Professor and Associate Chair</i>	Saiful Khondaker <i>Professor</i>	Volodymyr Turkowski <i>Research Assistant Professor</i>
James Cooney <i>Associate Lecturer and Undergraduate Program Assistant Director</i>	Richard Klemm <i>Professor</i>	Mihai Vaida <i>Assistant Professor</i>
Enrique del Barco <i>Professor and Associate Dean</i>	Viatcheslav Kokoouline <i>Professor</i>	Christos Velissaris <i>Associate Lecturer</i>
Kerri Donaldson Hanna <i>Assistant Professor</i>	Adam LaMee <i>Instructional Specialist</i>	Yi Wu <i>Scientist</i>

Affiliated Faculty (secondary joint and courtesy appointments) (17)

Zeidan Omar (c.a.) <i>Orlando Health</i>	Peter Potrebko (c.a.) <i>Florida Hospital</i>	Tania Roy (s.j.a.) <i>Nanoscience Technology Center</i>
M. J. Soileau (s.j.a.) <i>College of Optics</i>	Peter Delfyett (s.j.a.) <i>College of Optics</i>	Sampyo Hong (c.a.) <i>Brewton-Parker College, GA</i>
Franciso Gonzalez (c.a.) <i>San Luis Potosi, Mexico.</i>	Aristide Dogariu (s.j.a.) <i>College of Optics</i>	Bhimsen Shivamoggi (s.j.a.) <i>Mathematics</i>
Oleg Lupan (c.a.) <i>Technical University of Moldova</i>	Maria Womack (c.a.) <i>Florida Space Institute</i>	Konstantin Vodopyanov (s.j.a.) <i>College of Optics</i>
Noemi Pinilla-Alonso (s.j.a.) <i>Florida Space Institute</i>	Periasam Manoharan (s.j.a.) <i>Arecibo Observatory</i>	Walter Buchwald (c.a.) <i>University of Massachusetts</i>
Beatriz Roldan (c.a.) <i>Fritz-Haber Institute, Germany</i>	Martin Richardson (s.j.a.) <i>College of Optics</i>	

Post-Doctoral Associates (19)

Kevin Cannon <i>Britt group</i>	Imran Khan <i>B. Chen Group</i>	Yangyang Liu <i>M. Chini and Neupane groups</i>
Mathew Guthrie <i>Z. Chen group</i>	Jaesuk Kuon <i>Argenti Group</i>	Juan Randazzo <i>Argenti Group</i>
Tong Wan <i>J. Chini group</i>	Nrismha Murty Madugula <i>M. Chini group</i>	Ran Liu <i>Del Barco group</i>
Nabin Kandel	LiFeng Wang	Zahra Hooshmand

<i>B. Chen group</i>	<i>Chang Group</i>	<i>Rahman Group</i>
Shree Ram Acharya <i>Rahman Group</i>	J. Maria Galacia Hernandez <i>Rahman Group</i>	Erin Scanlon <i>J. Chini Group</i>
Jialin Li <i>Chang Group</i>	Seunghwoi Han <i>Chang Group</i>	Nicolas Douguet <i>Argenti Group</i>
Krishna Murari <i>Chang Group</i>		

Staff Members (12)

Nathan Aultman <i>Cleanroom Technician</i>	Esperanza Soto Arcino <i>Graduate Admissions Coordinator</i>
Ray Ramotar <i>Laboratory Manager</i>	Phillip Chan <i>Laboratory Coordinator II</i>
Jessica Brooks <i>Contracts & Grants Specialist III</i>	Robert Wong <i>Machinist</i>
Elizabeth Rivera <i>Human Resources Assistant I</i>	Rikki Leyva <i>Lab Technician</i>
Leida Vera Nater <i>Accounting Specialist III</i>	Sierra Cliburn <i>OPS Hourly Accounting Specialist I</i>
Nikitta Campbell <i>Administrative Assistant II</i>	Shelley Glaspie <i>Administrative Assistant I</i>

Graduate Students (103 active in Spring 2020)

AbdelHafiz, Sohila	Harrington Pinto, Olga	Pohl, Leos
Abedin, Faisal	Himes, Michael	Presler-marshall, Brynn
Adoah, Francis	Hinkle, Mary	Regmi, Sabin
Akter, Romena	Hosen, Md Mofazzel	Rende, Eric
Alam, Didarul	Islam, Molla	Reyes, Danielle
Arose, Christopher	James, Westley	Reyes, Justin
Arredondo, Anicia	Jardine, Keanna	Richardson, William
Asilador, Anthony	Jarmak, Stephanie	Rivera, Isabel
Austin Dave	Johnston, Ammon	Saghaye-Polkoo, Sajad
Bartley, Sarah	Jordan, Cody	Sajid, Muhammad
Beetar, John	Journigan, Troie	Seth, Swarnadeep
Berkley, Rainier	Kabir, Firoza	Shabbir, Muhammad
Berriel, Sasha	Kelly, Connor	Shi, kaige

Blue, Brandon	Khaniya, Asim	Shinaberry, Gregory
Bryan, Joshua	Khatri, Gyan	Shouk, Nahi
Byard, Jasmine	Kim, Sunghyun	Shouk, Ruqayyah
Campbell, Tyler	Larson, Jennifer	Siddiquee, Hasan
Cariker, Coleman	LeBleu-DeBartola, Amy	Sims, Christopher
Challener, Ryan	Liu, Zhichen	Slavicinska, Katerina
Chambers, Wesley	Lough, Stephanie	Smalley, Darian
Dhakar, Gyanendra	Lowry, Vanessa	Switzer, Eric
Dhar, Bijoya	Malfavon, Andrew	Thames, Tyrone
Dhara, Sayandip	Markowitz, Eric	Thompson, Jesse
Dissanayake, Charuni	Martinez Martinez, Ricardo	Torres Davila, Fernand
Doty, Constance	McIntyre, Kathleen	Truong, Chau
Douglas, Taylor	Mehmood, Saad	Ud Din, Naseem
Eckert, Stephanie	Modak, Sushrut	Ur Rehman, Mahboob
Felker, Zachary	Munir, Riffat	Withanage, Sajeevi
Ferrari, Brian	Nesper, Jonathan	Yuen, Chi Hong
Forer, Joshua	Nickle, Cameron	Zakhary, Justin
Fritjofson, Gregory	Oleynik, Daniel	Zaman, Nusaiba
Galinkin, Ryan	Panagiotakopoulos, Theodoros	Zamarripa, Brian
Gordon, Kenneth	Parsons, Zackary	Zhang, Tom
Greene, Johnnie	Pathan, Md Afjal Khan	
Guo, Tianyi	Phillips, James	

Visitors

Dacheng Zhang , <i>Xidian Univ, China</i> (June 2019). Host: Zenghu Chang	Yunquan Liu , <i>Peking Univ., China</i> (July 2019) Host: Zenghu Chang
Jonathan White , <i>Friedrich Schiller Univ., Germany</i> (October 2017 – November 2019). Host: Zenghu Chang	Caio Lewenkopf , <i>Universidade Federal Fluminense, Brazil</i> (July 2019). Host: Eduardo Mucciolo
João Pedro dos Santos Pires , <i>University of Porto, Portugal</i> (June 2019). Host: Eduardo Mucciolo	Kyung Taec Kim , <i>Gwangju Institute of Science & Technology, Korea</i> (September 2019). Host: Zenghu Chang
Aiyng Zhao , <i>Univ. of Science and Technology, China</i> (December 2017 – January 2020). Host: Richard Klemm	Jose Galicia Hernandez , <i>TEC Campus Puebla, Mexico</i> (April 2019 – October 2019). Host: Talat Rahman
Anass Sibari , <i>Mohammed V. Univ., Morocco</i> (October 2018 – July 2019). Host: Abdelkader Kara	Esben Larsen , <i>Imperial College, U.K.</i> (September 2019). Host: Zenghu Chang
Jia Shi , <i>Univ. of Science & technology Beijing</i> (July 2019 – Present). Host: Talat Rahman	Yuman Fang , <i>Xi'an Institute of Optics and Precision Mechanics, China</i> (December 2018 – November 2019). Host: Zenghu Chang

Gartsman Konstantin , <i>Weizmann Institute of Science, Israel</i> (November 2019 – December 2019), Host: Leonid Chernyak	Jabrane Meysoun , <i>Hassan II Univ. Morocco</i> (October 2019 – July 2020). Host: Abdelkader Kara
Chris Otolski , <i>Argonne National Lab</i> , (February 2020). Host: Michael Chini	Wosik Cao , <i>Gwangju Institute of Science & Technology, Korea</i> , (September 2019). Host: Zenghu Chang
P. K. Manoharan , <i>National Centre for Radio AstroPhysics, India</i> , (December 2019): Host: Eduardo Mucciolo	Jeppe Olsen , <i>Aarhus University, Denmark</i> , (March 2020). Host: Luca Argenti

Colloquium Speakers

Peter Johnson , <i>Brookhaven National Lab</i> . Host: Madhab Neupane	Ramon Edgardo Lopez , <i>University of Texas</i> . Host: Christopher Bennet
Dimitri Dounas Frazer , <i>Western Washington University</i> . Host: Jacquelyn Chini	Nitin Samarth , <i>Penn State</i> . Host: Madhab Neupane
Ellen Kang , <i>University of Central Florida</i> .	Robert Jones , <i>University of Virginia</i> . Host: Michael Chini
Alon Gordetsky , <i>University of California, Irvine</i> . Host: Bo Chen	Masatoshi Hirabayashi , <i>Auburn University</i> . Host: Adrienne Dove
William Kaden , <i>University of Central Florida</i>	Ivar Martin , <i>Argonne National Laboratory</i> . Host: Eduardo Mucciolo
Adrienne Dove , <i>University of Central Florida</i>	Renee Weber , <i>NASA</i> . Host: Adrienne Dove and Kerri Donaldson Hanna
Nina Ponomareva , <i>University of South Florida</i> . Host: Richard Klemm	Idaykis Rodriguez , <i>Florida International University</i> . Jacquelyn Chini
Victor Galitski , <i>University of Maryland</i> . Host: Yasuyuki Nakajima	Nabiha Saklayen , <i>Cellino Biotech</i> . Host: Luca Argenti
Heidi Haviland , <i>NASA Marshall Space Center</i> . Host: Kerri Donaldson-Hanna	Stephen M. Elardo , <i>University of Florida</i> . Host: Kerri Donaldson Hanna
Allison Wing , <i>Florida State University</i> . Host: Joseph Harrington	Dahlia Klein , <i>Massachusetts Institute of technology</i> . Host: Masahiro ishigami
Juan Perilla , <i>University of Delaware</i> . Host: Bo Chen	Michael D. Johnson , <i>Harvard- Smithsonian Center for Astrophysics</i> . Host: Yanga Fernandez
Anne-Marie March , <i>Argonne National lab</i> . Host: Michael Chini	

4. Faculty Productivity¹

Physics Faculty Scholarly Work in 2019-2020

Faculty Member	Indexed, peer-reviewed articles	Conference proceedings and Abstracts	Book chapters	Books	Invited presentations	Patents and disclosures
Argenti	3	5	-	-	1	-
Bennet	4	2	-	-	3	-
Bhattacharya	1	6	-	-	3	-
Britt	7	-	-	-	4	-
Campins	5	9	-	-	3	-
Chanda	7	-	-	-	7	6
Chang	9	3	1	-	9	-
B. Chen	-	-	-	1	1	-
Z. Chen	4	-	-	-	-	-
Chernyak	2	-	-	1	5	1
J. Chini	8	17	-	-	8	-
M. Chini	2	9	-	-	2	-
Chow	4	-	-	-	1	1
Colwell	2	15	-	1	-	-
Del Barco	4	-	-	-	-	-
Donaldson	4	8	-	-	-	-
Donoghue	-	1	-	-	-	-
Dove	1	8	-	-	4	-
Dubey	-	2	-	-	-	-
Efthimiou	1	4	-	-	-	-
Feng	2	2	-	-	5	-
Fernandez	2	15	-	-	-	-
Flitsiyan	2	-	-	-	2	-
Harrington	3	13	-	-	-	2
Ishigami	3	1	-	-	1	-

¹ In the publication lists, all UCF Physics affiliated authors are underlined.

Kaden	4	2	-	-	5	-
Kang	5	8	-	-	3	-
Faculty Member	Indexed, peer-reviewed articles	Conference proceedings and Abstracts	Book chapters	Books	Invited presentations	Patents and disclosures
Kara	11	-	-	-	2	-
Karalidi	4	1	-	-	-	-
Khondaker	4	5	-	-	1	-
Klemm	3	-	-	-	4	-
Kokoouline	9	5	1	-	7	-
LaMee	4	-	-	-	-	-
Leuenberger	2	-	-	-	-	2
Le	-	14	-	-	-	1
Lyakh	-	-	-	-	6	5
Mucciolo	5	1	-	-	-	-
Neupane	5	28	-	-	4	-
Peale	6	6	-	-	-	1
Rahman	10	30	1	1	13	2
Schelling	1	-	-	-	1	-
Schulte	2	15	-	-	3	-
Stolbov	2	2	-	-	-	-
Tatulian	3	2	-	-	-	-
Tetard	11	2	-	-	6	-
Turkowski	1	-	-	-	2	-
Vaida	2	7	-	-	1	-
Wu	2	-	-	-	-	-

Department Summary

Peer-Reviewed Journals	Conference Proceedings and Abstracts	Book Chapters	Other Publications	Invited Presentations	Patents Received	Disclosures and Patent Applications
162	247	6	50	115	7	10

Articles in Peer-Reviewed Journals and Proceedings (159)

1. L. Barreau, C. Leon M. Petersson, M. Klinker, A. Camper, C. Marante, T. Gorman, D. Kiewewetter, L. Argenti, P. Agostini, J. González-Vázquez, P. Salières, L. F. DiMauro, and F. Martín, *Disentangling Spectral Phases of Interfering Autoionizing States from Attosecond Interferometric Measurements*, Phys. Rev. Lett. **122**, 253203 (2019).
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3. J. Fuchs, N. Douguet, S. Donsa, F. Martin, J. Burgdörfer, L. Argenti, L. Cattaneo, and U. Keller, *Optica* **7**, 154 (2020).
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6. Y. H. Lo, C. T. Liao, J. Zhou, A. Rana, C. S. Bevis, G. Gui, B. Enders, K. M. Cannon, Y. S. Yu, R. Celestre, K. Nowrouzi, D. Shapiro, H. Kapteyn, R. Flacone, C. Bennett, M. Murnane, and J. Miao, *Multimodal x-ray and electron microscopy of the Allende meteorite*, Science Advances **5** (9) (2019).
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10. C. Avdellidou, A. DiDonna, C. Schultz, B. Harthong, M.C. Price, R. Peyroux., D. Britt, M. Cole, and M. Delbo, *very weak carbonaceous asteroid simulants I: Mechanical properties and response to hypervelocity impacts*, Icarus **341**, 113648 (2020).

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13. J. R. Spencer and D. T. Britt, et al. *The geology and geophysics of Kuiper Belt object (486958) Arrokoth*, *Science* **367** (6481), eaay3999 (2020).
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19. M. Pajola, B. Risk, E. R. Jawin, K. K. Walsh, D. N. DellaGiustina, H. Campins, J. L. Molaro, M. Delbom, T. J. McCoy, S. R. Schwartz, R. L. Ballouz, G. Poggiali, J. R. Brucato, E. Dotto, E. B. Bierhaus, K. Burke, C. A. Bennett, M. G. Daly, C. Elder, and P. Michel, *Surface Density and Size Distribution of Clasts. 101955 Benu's Boulders: Exposed Clasts of Fallback Material?* 51st Lunar and Planetary Science Conference, LPI Contribution No. 2326, 2020, id.1400, Woodlands, Texas, March 16-20, 2020.
20. H. H. Kaplan, A. A. Simon, J. P. Emery, H. Campins, S.A. Sanford, D. C. Reuter, V. E. Hamilton, E. A. Cloutis, S. Fornasier, M. A. Barucci, B. E. Clark, D. P. Glavin, J. P. Dworkin, and D. S. Lauretta, *Evidence of Organics and Carbonates*. 101955 Benu, 51st Lunar and Planetary Science Conference, LPI Contribution No. 2326, 2020, id.1050, Woodlands, Texas, March 16-20, 2020.
21. L. F. Lim, H. H. Kaplan, V. E. Hamilton, P. R. Christensen, A. A. Simon, D. C. Reuter, J. P. Emery, B. Rozitis, M. A. Barucci, A. Praet, H. Campins, B. E. Clark, M. Delbo, J. Licandro, R. D. Hanna, E. S. Howell, and D. S. Lauretta, *Main-Belt Infrared Spectral Analogues*. 101955 Benu: Gaussian Fitting to AKARI Spectra of Benu-Like Asteroids, 51st Lunar and Planetary Science Conference, Texas. LPI Contribution No. 2326, 2020, id.1045, Woodlands, Texas, March 16-20, 2020.
22. M. Pajola, B. Bierhaus, K. J. Walsh, D. N. DellaGiustina, E. R. Jawin, M. Delbo, J. Molaro, S. R. Schwartz, R. L. Ballouz, C. A. Bennett, B. Rizk, K. N. Burke, H. Campins, J. R. Brucato, G. Poggiali, E. Dotto, M. G. Daly, C. M. Elder, P. Michel, and M. E. Perry, *Surface densities and size-frequency distributions of meter-size boulders inside craters*. 101955 Benu. American Geophysical Union, Fall Meeting, abstract #P53C-3456, 2019.
23. J. White and Z. Chang, *Attosecond X-ray Phase Retrieval by Deep Neural Network*. Frontiers in Optics, Washington, DC United States, September 15–19, 2019.
24. Y. Wu, F. Zhou, and Z. Chang, *Generation of 4.5mJ 2.5- μ m pulses from a single stage Cr²⁺:ZnSe Chirped-Pulse amplifier*. Laser Science, Washington, DC United States, September 15–19, 2019.

25. K. Murari, Y. Yin, Y. Wu, and Z. Chang, *Multi-millijoule Ho:YLF based amplifier for pumping mid-infrared OPCPA at 1 kHz*. *Frontiers in Optics*. Washington, DC United States, September 15–19, 2019.
26. C. M. Doty, A. A. Geraets, T. Wan, E. K. H. Saitta, and J. Chini, *Practice with Dysfunctional Avatar-student Groups in a Mixed-reality Classroom Simulator*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
27. A. A. Geraets, C. M. Doty, T. Wan, J. Chini, E. K. H. Saitta, *Impact of Multiple Practices in a Mixed-reality Teaching Simulator*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
28. T. Wan, C. M. Doty, A. A. Geraets, E. K. H. Saitta, and J. Chini, *Evaluating Impact of Teaching in a Mixed-Reality Classroom Simulator on GTAs' Teaching Practices*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
29. D. Oleynik, E. Scanlon, and J. Chini, *Physicists' Views about Disability and Physics Careers*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January 18-21, 2020.
30. A. B. Barooni, J. Von Korff, B. D. Thoms, Z. Topdemir, and J. Chini, *Considering Different Representations of Research-based Activities*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
31. B. Zamarripa Roman and J. Chini, *Characterizing Goal Orientations Held by Hispanic Women Physics Students*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January 18-21, 2020.
32. A. B. Barooni, J. Von Korff, B. D. Thoms, Z. Topdemir, and J. Chini, *Three Approaches for Designing Physics Activities*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
33. E. Scanlon and J. Chini, *Instructors Purposeful Modification to Group Work: The Case of SCALE-UP at Nine Institutions*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
34. W. D. James, S. Cartagena, and J. Chini, *Evaluating the Effectiveness of Training Instructors in Universal Design for Learning*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
35. B. Zamarripa Roman, A. V. Schwandes and J. Chini, *A Collaborative Poetic Analysis of a Metaphor for Success in Physics*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
36. J. Chini, E. Scanlon and D. Oleynik, *Survey-based Investigation of Post-secondary Physics Instructor Use of Inclusive Teaching Practices*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.

37. T. Wan, C. M. Doty, A. A. Geraets, E. K. H. Saitta, and J. Chini, *Characterizing Instructional Practices in Inquiry-Oriented Laboratories*. American Association of Physics Teachers Summer Meeting, Provo, UT, July, 2019
38. J. Chini, T. Wan, C. M. Doty, A. A. Geraets, and E. K. H. Saitta, *Don't just say, 'You're wrong': GTAs Normalize Error in a Classroom Simulator*. American Association of Physics Teachers Summer Meeting, Provo, UT, July, 2019
39. E. Scanlon and J. Chini, *Postsecondary STEM curricula: Preparing for diverse learners, Equity & Excellence Access in Higher Education*, Association on Higher Education and Disability, Boston, MA, July, 2019.
40. W. James, E. Scanlon, and J. Chini, *More than a diagnosis: Perspectives from students with ADHD enrolled in STEM*. Equity & Excellence Access in Higher Education, Association on Higher Education and Disability, Boston, MA, 2019.
41. A. Geraets, J. Chini, and E. Saitta, *Implementing Rehearsal Concept Modules for Graduate Teaching Assistant Professional Development*. Florida Annual Meeting and Exposition, Innisbrook, FL, May, 2019.
42. S. Gholam-Mirzaei, S. Jiang, E. Crites, J. E. Beetar, R. Lu, C.-D. Lin, and M. Chini, *Symmetry and polarization of high-order harmonic generation from solids*. Lasers and Electro-Optics, San Jose, CA, May, 2019.
43. J. E. Beetar, S. Rivas, S. Gholam-Mirzaei, Y. Liu, and M. Chini, *Two-stage nonlinear compression of a Yb:KGW laser amplifier to sub-10 fs duration*. Lasers and Electro-Optics, San Jose, CA, May, 2019.
44. Y. Liu, J. E. Beetar, M. M. Hosen, G. Dhakal, C. Sims, M. B. Etienne, F. Kabir, K. Dimitri, S. Regmi, M. Neupane and M. Chini, *Time- and angle-resolved photoemission spectroscopy using an ultrafast xuv source at 21.8 eV*. Lasers and Electro-Optics, San Jose, CA, May, 2019.
45. E. Crites, S. Gholam-Mirzaei, Z. Khan, J. E. Beetar, M. Singh, and M. Chini, *A Jones calculus approach to high-order harmonic generation in bulk crystals*. 50th Annual Meeting of the APS Division of Atomic, Molecular, and Opticsl Physics, Milwaukee, WI, May, 2019.
46. C.-D. Lin, S. Jiang, S. Gholam-Mirzaei, E. Crites, J. E. Beetar, R. Lu, and M. Chini, *Crystal symmetry and polarization of high-order harmonics in ZnO*. 50th Annual Meeting of the APS Division of Atomic, Molecular, and Opticsl Physics, Milwaukee, WI, May, 2019.
47. S. Gholam-Mirzaei, S. Jiang, E. Crites, J. E. Beetar, M. Singh, C.-D. Lin, and M. Chini, *Role of symmetry properties in polarization of high-order harmonics in ZnO*. 50th Annual Meeting of the APS Division of Atomic, Molecular, and Opticsl Physics, Milwaukee, WI, May, 2019.
48. E. Crites, S. Gholam-Mirzaei, T. Journigan, Z. Khan, J. E. Beetar, M. Singh, and M. Chini, *Jones calculus analysis of high-order harmonic generation in bulk crystal*. 2020 NMC, NSBP, and NSHP Conference, Orlando, FL, February, 2020).

49. D. Alam, N. Ud Din, S. Gholam-Mirzaei, T. Jiang, M. Chini, and V. Turkowski, *Electron correlation time-dependent density functional theory for high-order harmonic generation in solids*. APS March Meeting 2020, virtual, March, 2020.
50. Y. Liu, M. M. Hosen, G. Dhakal, C. Sims, J. E. Beetar, S. Regmi, K. Dimitri, F. Kabir, D. Kaczorowski, M. Chini, and M. Neupane, *Study of hot electrons in topological nodal-line semimetal ZrSiS using time- and angle-resolved photoemission spectroscopy*. APS March Meeting 2020, virtual, March, 2020.
51. S. G. Jarmak, J. E. Colwell, J. Brisset, A. R. Dove, *CubeSat Particle Aggregation Collision Experiment (Q-PACE) Simulation Results of the Collisional Evolution of Particle Ensembles*. Paper #P34C-10, American Geophysical Union Fall Meeting, San Francisco CA, December 9-13, 2019.
52. S. Eckert, J. E. Colwell, M. Green, J. Payne-Avary, and L. W. Esposito, *Sizes of Particles and Highly Resolved Ring Structure in Saturn's Rings from an Analysis of Higher Order Statistical Moments of Cassini UVIS Stellar Occultation Data*. American Geophysical Union Fall Meeting, Paper #P23C-3512, San Francisco CA, December 9-13, 2019.
53. R. G. French, R. G., C. McGhee-French, P. D. Nicholson, M. M. Hedman, J. E. Colwell, E. A. Marouf, N. J. Rappaport, J. W. Fong, S. Flury, and R. Maguire, *The Shape of Saturn's B Ring Edge from Voyager Earth-based and Cassini VIMS. UVIS, and RSS Occultations*. American Geophysical Union Fall Meeting, Paper #P23C-3511, San Francisco CA, December 9-13, 2019.
54. C. McGhee-French, R. G. French, P. D. Nicholson, M. M. Hedman, J. E. Colwell, E. A. Marouf, J. W. Fong, S. Flury, and R. Maguire, *The Shape of Saturn's A Ring Edge from Cassini VIMS. UVIS, and RSS Occultations*, American Geophysical Union Fall Meeting, Paper #P23C-3510, San Francisco CA, December 9-13, 2019.
55. M. Green, J. E. Colwell, R. Sealy, J. Payne-Avary, and V. R. Luthra, *Autocorrelation and Skewness of Cassini UVIS Stellar Occultations Reveal 100-meter-scale Structures in Saturn's Rings*. American Geophysical Union Fall Meeting, Paper #P23C-3509, San Francisco CA, December 9-13, 2019.
56. D. D. Sega Neuman, L. W. Esposito, and J. E. Colwell, *A Non-linear Model for the Mimas 5:3 Bending Wave Including Self-gravity Wakes*. American Geophysical Union Fall Meeting, Paper #P23C-3506, San Francisco, CA, December 9-13, 2019.
57. J. E. Colwell, R. Jerousek, M. Lewis, K. M. Aye, M. S. Tiscareno, and L. W. Esposito, *Mesoscale Structures in Saturn's Rings from Cassini UVIS Stellar Occultation Data*. American Geophysical Union Fall Meeting, Paper #P23C-3505, San Francisco, CA, December 9-13, 2019.
58. R. Jerousek, J. E. Colwell, M. M. Hedman, R. G. French, E. A. Marouf, L. W. Esposito, and P. D. Nicholson, *Particle sizes in Saturn's rings from Cassini UVIS. VIMS, and RSS Occultations*, American Geophysical Union Fall Meeting, Paper #P21B-02, San Francisco, CA, December 9-13, 2019.

59. S. Pilorz, J. E. Colwell, M. Showalter, L. Spilker, N. Altobelli, S. Brooks, and C. Ferrari, *The Far-IR Emissivity of Saturn's Rings Observed with Cassini CIRS*. EPSC-DPS Joint Meeting, Paper #EPSC-DPS2019-1227, Geneva Switzerland, September 15-20, 2019.
60. S. Eckert, J. Colwell, R. Green, J. Payne-Avary, and L. Esposito, *Sizes of Particles, Clumps, and Holes in Saturn's Rings from Cassini UVIS Stellar Occultation Statistics in Highly Resolved Ring Structure*. EPSC-DPS Joint Meeting, Paper #EPSC-DPS2019-1197, Geneva Switzerland, September 15-20, 2019.
61. J. Colwell, J. Brisset, A. Dove, and S. Jarmak, *Q-PACE: The CubeSat Particle Aggregation and Collision Experiment*. EPSC-DPS Joint Meeting, Paper #EPSC-DPS2019-1119, Geneva Switzerland, September 15-20, 2019.
62. S. Jarmak, J. Colwell, A. Dove, J. Brisset, and J. Massaro, *Experimental Investigation of Regolith Adhesion in Low-Energy, Microgravity Interactions: Implications for Planetesimal Accretion*. EPSC-DPS Joint Meeting, Paper #EPSC-DPS2019-1097, Geneva Switzerland, September 15-20, 2019.
63. B. Meinke, T. Becker, J. Colwell, S. Pilorz, S. Brooks, and T. Bradley, *Cassini UVIS Solar Occultations as Probes of Particle Size Distribution in Saturn's F Ring*, EPSC-DPS Joint Meeting, Paper #EPSC-DPS2019-1003, Geneva Switzerland, September 15-20, 2019.
64. T. Becker, B. Meinke, J. Colwell, S. Pilorz, S. Brooks, and T. Bradley, *EUV Transmission Spectra of Saturn's Rings from Cassini UVIS Solar Occultations*, EPSC-DPS Joint Meeting, Paper #EPSC-DPS2019-879, Geneva Switzerland, September 15-20, 2019.
65. R. G. Jerousek, J. E. Colwell, M. M. Hedman, R. G. French, E. A. Marouf, L. W. Esposito, and P. D. Nicholson, *Particle Sizes and Sorting in Saturn's C Ring and Cassini Division from Cassini UVIS, VIMS, and RSS Observations*, 50th Lunar and Planetary Science Conference, Paper #2132, The Woodlands Texas, March 18-22, 2019.
66. H. C. Bates, K. L. Donaldson Hanna, A. J. King, N. E. Bowles, L. F. Lim, J. P. Emery, and S. S. Russell, *Using thermal infrared spectra of meteorites to investigate asteroid composition and evolution*. 51st LPSC, Houston, TX, March, 2020.
67. V. C. Lowry, K. L. Donaldson Hanna, H. Campins, and V. E. Hamilton, *Linear unmixing of fine particulate materials: Implications for compositional analyses of primitive asteroids*. 51st LPSC, Houston, TX, March, 2020.
68. K. L. Donaldson Hanna, K. L. and N. E. Bowles, *The effects of fine particulates on thermal infrared emissivity spectra*. 51st LPSC, Houston, TX, March, 2020.
69. K. L. Donaldson, N. E. Bowles, C. S. Edwards, B. L. Ehlmann, B. T. Greenhagen, P. O. Hayne, R. L. Klima, P. G. Lucey, D. A. Paige, and C. M. Pieters, *Mapping the composition of the Moon using thermal IR spectroscopy: Current and future observations*. Fall American Geophysical Union Meeting, San Francisco, CA, December, 2019.

70. K. L. Donaldson, B. T. Greenhagen, and N. E. Bowles, *The Moon and asteroids across the thermal infrared*. SSERVI Exploration Science Forum, NASA Ames, Mountain View, CA, July, 2019.
71. E. C. Brown, K. L. Donaldson Hanna, N. E. Bowles, V. E. Hamilton, B. E. Clark, A. D. Rogers, D. S. Lauretta, and The OSIRIS-REx team, *Comparing thermal infrared spectral unmixing algorithms: Applications to Bennu and other airless bodies*. 82nd Annual Meeting of the Meteoritical Society, Sapporo, Japan, July, 2019.
72. H. Bates, K. Donaldson Hanna, A. King, N. Bowles, and S. Russell, *Spectrally characterizing the effects of thermal metamorphism in CM2 and CI carbonaceous chondrites*. Origins of Solar Systems Gordon Research Conferences, Mount Holyoke College, South Hadley, MA, June, 2019.
73. K. L. Donaldson Hanna, B. T. Greenhagen, and N. E. Bowles, *The Moon and asteroids across the thermal infrared*. 7th European Lunar Symposium, Manchester, UK, May, 2019.
74. S. Jahan, Y. Wang, W. Burnett, G. Means, J. F. Donoghue, and J. J. Liu, *Geochemical proxies in lake sediments reveal 4500 years of hurricane activity in north Florida*. Geological Society of America Abstracts with Programs, v. **51**, no. 5; doi: 10.1130/abs/2019AM-331759, Geological Society of America Ann. Meeting, Phoenix, AZ, September 22-25, 2019.
75. A. Dove, W. Chambers, C. Cox, A. Rothermich, and A. Nicola, *Generating Slope Failures in Regolith Simulants in Variable Gravity*. LPSC 51, Abstract #2823, March, 2020.
76. A. Dove, A. Heise, J. Anthony, and K. John, *Testing in Asteroid-Relevant Environments aboard Sub-Orbital Flights for Technology Development and Science Applications*. Next-Generation Suborbital Researchers Conference, March, 2020.
77. J. Colwell, S. Jarmak, A. Dove, and J. Brisset, *Early Stages of Planetesimal Formation in Microgravity Experiments*. Next-Generation Suborbital Researchers Conference, March, 2020.
78. A. Dove, C. Cox, W. Chambers, G. Gomer, A. Rothermich, and A. Nicola, *Evaluating granular mechanics behavior in a variable-gravity system*. AGU Fall Meeting, San Francisco, CA. Abstract #P43D-3505, December, 2020.
79. A. Dove, G. Gomer, M. Fraser, K. John, and M. Fries, *Evaluating regolith stratification in an asteroid-like environment via ISS and suborbital experiments*. EPSC-DPS Joint meeting, Geneva, Switzerland, Abstract EPSC-DPS2019-1226, September, 2019.
80. S. Jarmak, J. Colwell, A. Dove, J. Brisset, and J. Massaro, *Experimental investigation of regolith adhesion in low-energy, microgravity interactions: implications for planetesimal accretion*. EPSC-DPS Joint meeting, Geneva, Switzerland, Abstract EPSC-DPS2019-1097, September, 2019.
81. J. Colwell, J. Brisset, A. Dove, S. Jarmak, and the Q-PACE Team, *Q-PACE: The CubeSat particle aggregation and collision experiment*. EPSC-DPS Joint meeting, Geneva, Switzerland, Abstract EPSC-DPS2019-1119, September, 2019.

82. W. Chambers, P. Metzger, A. Dove, and D. Britt, *GRIT: A plume-surface interaction experiment in vacuum microgravity*. NASA SSERVI Exploration Science Forum, Mountain View, CA, NESF2019-081, July, 2019.
83. S. Muller and A. Dubey, *Student Performance and Stress Level in Different Testing Environments*. Summer AAPT Meeting, Provo, UT, July, 2019.
84. S. Muller and A. Dubey, *Student Performance and Stress Level in Different Testing Environments*. Poster presentation -Physics Education and Research Conference, Provo, UT, July, 2019.
85. E. Efthimiou, *Electrostatics and Riemann Surfaces*, poster presentation. National AAPT Winter Meeting, January, 2020.
86. E. Efthimiou, *Electrostatics and Riemann Surfaces*. virtual poster presentation, APS April Meeting, April, 2020.
87. E. Efthimiou, *Assessment of the Effect of Service Learning in Introductory Physics Course on Students Learning and Critical Thinking*. 7th Annual International Conference on Physics, July, 2019.
88. E. Flitsyan, C. Efthimiou, and T. Rahman, *Assessment of the Effect of Service Learning in Introductory Physics on Students Learning and Critical Thinking*, ATINER's Conference Paper Proceedings Series, PHY2019-0135, ISSN: 2529-167X, Athens, July, 2019.
89. L. Hu and X. Feng, *Understanding Fe-Based Catalysts for Electrochemical Ammonia Synthesis at Ambient Conditions*. AIChE Annual Meeting, Orlando, FL, November, 2019.
90. Z. Xing, F. Ren, and X. Feng, *Multifunctional Vanadium-doped Cobalt Oxide Layer on Silicon Photoanodes for Efficient Photoelectrochemical Water Oxidation*. AIChE Annual Meeting, Orlando, FL, November, 2019.
91. K. Ortiz Ceballos, E. S. Howell, A. Méndez, Y. R. Fernandez, A. J. Lovell, and C. A. Schambeau, *Observing Interstellar Comet 2I/Borisov for Radio OH Lines with the Arecibo Observatory*. 51st Lunar and Planetary Science Conference, Abstract 3078, Woodlands, Texas, March 16-20, 2020. (This conference was either cancelled or run virtually due to COVID-19, but the abstract was posted electronically).
92. S. J. Robbins, C. M. Lisse, Y. R. Fernández, and 18 colleagues, *Asteroids, Comets, and Kuiper Belt Objects: Sources of Inner and Outer Solar System Crater Populations*. 51st Lunar and Planetary Science Conference, Abstract #2589, Woodlands, Texas, March 16-20, 2020. (This conference was either cancelled or run virtually due to COVID-19, but the abstract was posted electronically).
93. Y. R. Fernandez, J. M. Bauer, E. A. Kramer, A. K. Mainzer, T. Grav, J. R. Masiero, C. A. Schambeau, S. M. Sonnett, and E. L. Wright, *NEOWISE Monitoring of Active Centaur 29P/Schwassmann-Wachmann 1*.

94. 51st Lunar and Planetary Science Conference, Abstract #1802, Woodlands, Texas, March 16-20, 2020. (This conference was either cancelled or run virtually due to COVID-19, but the abstract was posted electronically).
95. L. E. Schunova, T. Spahr, T. Grav, S. Sonnett, A. Mainzer, J. Bauer, E. Kramer, Y. Fernandez, and C. Schambeau, *Building the Reference Small Body Population Model*. American Astronomical Society meeting #235, id. 385.04, Honolulu, HI, January 4-8, 2020.
96. S. J. Robbins, C. Lisse, K. Singer, Y. Fernandez, and 17 colleagues, *Comets Sourced by KBOs: Comparison of Cometary Size-Frequency Distributions with Outer Solar System Craters*. American Astronomical Society meeting #235, id. 220.04, Honolulu, HI, January 4-8, 2020.
97. E. Kramer, A. Mainzer, J. Bauer, Y. Fernandez, T. Grav, J. Masiero, S. Sonnett, T. Spahr, and C. Schambeau, *Modeling the photometric behaviour of comets to use in population modeling*. American Astronomical Society meeting #235, id. 211.04, Honolulu, HI, January 4-8, 2020.
98. M. Hinkle, E. Howell, Y. Fernandez, R. Jr. Vervack, C. Magri, A. Rivkin, S. Marshall, and J. Crowell, *The Rotationally-resolved surface properties of (433) Eros from thermophysical modeling*. EPSC-DPS Joint Meeting, abstract #1508, Geneva, Switzerland, September 15-20, 2019.
99. E. Kramer, A. Mainzer, J. Bauer, Y. Fernandez, T. Grav, J. Masiero, S. Sonnett, and E. Wright, *Trends in Cometary Dust Tails in NEOWISE*. EPSC-DPS Joint Meeting, abstract #1435, Geneva, Switzerland, September 15-20, 2019.
100. E. Kramer, A. Mainzer, J. Bauer, Y. Fernandez, T. Grav, J. Masiero, S. Sonnett, T. Spahr, and E. Wright, *Modeling the photometric behaviour of comet populations*. EPSC-DPS Joint Meeting, abstract #1428, Geneva, Switzerland, September 15-20, 2019.
101. J. Bauer, A. Mainzer, E. Kramer, T. Grav, J. Masiero, Y. Fernandez, and 9 colleagues, *A 7-Year Stretch: NEOWISE CO+CO₂ Production Rates*. EPSC-DPS Joint Meeting, abstract #1046, Geneva, Switzerland, September 15-20, 2019.
102. J. Bauer, A. Mainzer, E. Kramer, Y. Fernandez, T. Grav, J. Masiero, C. Schambeau, T. Spahr, E. Lilly, R. Cutri, and N. Wright, *Comet Science with NEOCam*. EPSC-DPS Joint Meeting, abstract #756, Geneva, Switzerland, September 15-20, 2019.
103. D. P. Glavin, Y. Fernandez, and 66 colleagues, *Overview of the Comet Astrobiology Exploration Sample Return (CAESAR) New Frontiers Mission*. 82nd Annual Meeting of The Meteoritical Society, Abstract #6002, Sapporo, Japan, July 7-12, 2019.
104. Y. R. Fernandez, *New Cometary Insights from the Close Approach of 46P/Wirtane*. A Symposium in Celebration of Mike A'Hearn, College Park, MD, August 6-7, 2019.
105. W. Harris, L. Woodney, G. Villanueva, Y. R. Fernandez, and Colleagues from the Chimera Science Team, *Chimera: A mission of Discovery to the First Centaur*. American Geophysical Union meeting, San Francisco, CA, December 9-13, 2019.

106. J. Harrington, M. D. Himes, P. E. Cubillos, J. Blečić, P. M. Rojo, R. C. Challener, N. B. Lust, M. O. Bowman, S. D. Blumenthal, I. Dobbs-Dixon, A. S. D. Foster, A. J. Foster, M. R. Green, T. J. Loredo, K. J. McIntyre, and M. M. Stemm, *The Bayesian Atmospheric Radiative Transfer (BART) code: 3D mapping and machine learning*. AAS Meeting Abstracts, 173.13, 2020.
107. K. J. McIntyre, J. Harrington, and S. S. Eikenberry, *Transit spectroscopy with MIRADAS*. AAS Meeting Abstracts, 116.02, 2020.
108. Z. Scheffer, J. Harrington, R. C. Challener, and K. J. McIntyre, *EDGAR: Automating POET for analysis for HD 209458b eclipse light curves*. AAS Meeting Abstracts, 115.04, 2020.
109. M. R. Green, R. C. Challener, M. D. Himes, J. Blečić, and P. Cubillos, *An analysis of the orbit and atmosphere of WASP-17b as revealed by Spitzer*. AAS Meeting Abstracts, 122.05, 2020.
110. R. C. Challener, *Exoplanets: Correlated noise and cautionary tales*. AAS Meeting Abstracts, 409.05, 2020.
111. M. D. Himes, A. D. Cobb, F. Soboczenski, S. Zorzan, M. D. O'Beirne, A. G. Baydin, Y. Gal, D. Angerhausen, S. Domagal-Goldman, and G. Arney, *Machine learning retrieval of Jovian and terrestrial atmospheres*. AAS Meeting Abstracts, 343.01, 2020.
112. J. Harrington, M. D. Himes, P. E. Cubillos, J. Blečić, P. M. Rojo, R. C. Challener, N. B. Lust, M. O. Bowman, S. D. Blumenthal, I. Dobbs-Dixon, A. S. D. Foster, A. J. Foster, M. R. Green, T. J. Loredo, K. J. McIntyre, and M. M. Stemm, *The Bayesian Atmospheric Radiative Transfer (BART) code in the JWST era*. In Joint EPSC-DPS Meeting, Volume 13 of EPSC Abstracts, pp. 1238, 2019.
113. A. Antuñaño, L. N. Fletcher, G. S. Orton, H. Melin, S. Milan, J. Rogers, T. Greathouse, J. Harrington, R. Giles, and P. T. Donnelly, *Jupiter's atmospheric variability from long-term ground-based observations at 5 microns*. In Joint EPSC-DPS Meeting, Volume 13 of EPSC Abstracts, pp. 452, 2019.
114. R. C. Challener and J. Harrington, *A comprehensive Spitzer study of GJ 436b*. In AAS/Extreme Solar Systems Abstracts, Volume 51, pp. 313.09, 2019.
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118. R. C. Challener and J. Harrington, *A comprehensive Spitzer study of the GJ 436b eclipses*. Presented at the ExoClimes V Workshop, Oxford, UK, August 2019.

119. S. Lough, B. T. Blue, and M. Ishigami, *Scanning Tunneling Microscopy of NiTe₂*. The Florida Section of the American Vacuum Society, March, 2020
120. W. Kaden, *Bilayer Silicates as Models for Space-weather-mediated Water-cycling Processes at the Interface of Airless Bodies*. 66th AVS International Symposium and Exhibition, Columbus, OH, October, 2019.
121. W. Kaden, *Development and characterization of δ MoN/Ru(0001) and γ Mo₂N/Ag(100) thin-films for model-catalysis applications*. 79th Physical Electronics Conference, Orlando, FL, June, 2019.
122. J. Park, M. Lee, B. Lee, N. Castaneda, L. Tetard, and E. H. Kang, *Macromolecular crowding modulates the organization of actin bundles induced by actin crosslinking proteins*. Biophysical Society Annual Meeting, San Diego, CA, February, 2020.
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125. N. Castaneda, M. Lee, H. J. Rivera-Jacquez, R. R. Marracino, T. R. Merlino, and E. H. Kang, *Molecular crowding modulates actin filament mechanics and structure*. NanoFlorida International Conference, Tampa, FL, November, 2019.
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130. T. Karalidi, *Mapping Atmospheres in the ELTs era*. Lorentz Center Workshop: Directly Imaging Exoplanets in Polarized Light with ELTs, Leiden, Netherlands, December, 2019.
131. S. S. Withanage, B. Chamlagain, and S. I. Khondaker, *Effect of CVD Growth Conditions on the Electrical Properties of Metal Seeded MoS₂ Thin Films*. AVS Florida Chapter Annual Symposium, Orlando, FL, March 9-10, 2020.

132. A. C. Johnston and S. I. Khondaker, *High Throughput Exfoliation Of Large Area Atomically Thin Two-Dimensional Semiconductors Through Sacrificial Aluminum, Copper, Nickel, Or Molybdenum Layer*. 2020 Annual Symposium Florida Chapter Of The AVS Science And Technology Society, Orlando, FL, March 9-10, 2020.
133. B. Chamlagain, S. S. Withanage, and S. I. Khondaker, *Application of Dry Transfer Technique and Selective Area Doping: Towards the Scalable Device Architecture*. Industrial Affiliate Symposium, Orlando, FL, August 15-16, 2019.
134. G. Shinaberry, Y. Moustafa, B. Chamlagain, Q. Huo, and S. I. Khondaker, *Potential Doping of an MoS₂-FET Utilizing Bovine Antibodies*. 79th physical electronics conference, Orlando, FL, June 3-5, 2019.
135. V. Charles, S. S. Withanage, N. J. Soto, B. Chamlagain, and S. I. Khondaker, *Synthesis and Characterization of different types of 2D nanostructures*. 79th physical electronics conference, June 3-5, 2019 Orlando, FL (abstract was posted electronically).
136. A. O'Hare, J. Tennyson, and V. Kokoouline, *Dissociative Recombination with a Scattering Matrix Approach; HeH⁺ as a Test Case*. XX International Workshop on Low-Energy Positron and Positronium Physics and XXI International Symposium on Electron-Molecule Collisions and Swarms, Belgrade, Serbia, July 18-20, 2019.
137. H. Liu, S. Fonseca dos, C. H. Yuen, P. Cortona, V. Kokoouline, and M. Ayouz, *Theoretical study of vibrational excitation and dissociative electron attachment of NO₂ by an electron impact*. DAMOP 2019-50th Annual APS Division of Atomic, Molecular, and Optical Physics, Milwaukee, WI, May 27-31, 2019.
138. X. Jiang, C. H. Yuen, P. Cortona, V. Kokoouline, M. Ayouz, *Vibronic excitation cross sections and rate coefficients of CH⁺ by electron impact*. DAMOP 2019-50th Annual APS Division of Atomic, Molecular, and Optical Physics, Milwaukee, WI, May, 2019.
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141. D. Le, T. Jang, T. S. Rahman, *Nitrogen vacancy on hexagonal boron nitride as single orbital catalyst: A first principles study*. 79th Physical Electronics Conference, Orlando, FL, June 3-5, 2019.
142. Z. Hooshmand, V. Turkowski, D. Le, and T. S. Rahman, *The molecule deprotonation and the excitation spectrum of Ag₄₄(MNBA)₂*. 79th Physical Electronics Conference, Orlando, FL, June 3-5, 2019.
143. S. R. Acharya, D. Le, S. Chiang, C. Y. Fong, and T. S. Rahman, *Atomic, electronic and vibrational structure of Ag and Au over layers on the Ge (111) surface: first-principles study*. 79th Physical Electronics Conference, Orlando, FL, June 3-5, 2019.

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145. A. Childs, S. R. Acharya, D. Le, C. Y. Fong, S. Chiang, and T. S. Rahman, *Atomic model and electronic structure of Pb over layers on the Ge(111) Surface: A first-principles study*. 79th Physical Electroncis Conference, Orlando, FL, June 3-5, 2019.
146. S. Joshi, D. Le, and T. S. Rahman, *Metallization of the Si(001) surface: An atomistic study using a neural network potential*. 79th Physical Electroncis Conference, Orlando, FL, June 3-5, 2019.
147. J. Shi, D. Le, V. Turkowski, N. Ud Din, T. Jiang, T. S. Rahman, and Q. Gu, *Thickness dependence of band structure of FeSe*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
148. N. Ud Din, D. Le, and T. S. Rahman, *Design of Redox active Metal Organic Chains for single site catalysis using First-principles density functional theory*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
149. T. Jiang, D. Le, and T. S. Rahman, *Alcohol synthesis on MoS₂-supported gold nanoparticle*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
150. K A M H. Siddiquee, R. Munir , C. Dissanayake, X. Hu, S. Yadav, Y. Takano, E. S. Choi, T. S. Rahman, D. Le, and Y. Nakajima, *Design, growth, characterization and band structure analysis of non-trivial topological semimetal candidate CaSn₃*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
151. S. Joshi, D. Austine, D. Le, and T. S. Rahman, *Predicting h-BCN geometric structures using clustering and regression methods*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
152. C. Malley, D. Le, and T. S. Rahman, *Predicting diffusion barriers of Ag clusters on the Ag(111) surface using machine learning*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
153. S. Lough, B. Blue, D. Le, and M. Ishigami, *STM/STS of few-layer topological semimetal NiTe₂ at cryogenic temperatures*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
154. W. E. Richardson, P. K. Schelling, and E. R. Mucciolo, *Beyond Cu Interconnects: A Scalable Approach to Model Transport in Nanowires*. TECHCON, Austin, TX, September, 2019.
155. G. Dhakal, M. Mofazzel Hosen, A. Ghosh, C. Lane, K. Gornicka, M. J. Winiarski, K. Dimitri, F. Kabir, C. Sims, S. Regmi, W. Neff, L. Persaud, Y. Liu, D. Kaczorowski, J. -Xin Zhu, T. Klimczuk, M. Neupane, *Observation of topological surface state in a superconducting material*. APS March Meeting, Denver, CO, March 4, 2020.
156. G. Dhakal, M. Mofazzel Hosen, A. Ghosh, C. Lane, K. Gornicka, M. J. Winiarski, K. Dimitri, F. Kabir, C. Sims, S. Regmi, W. Neff, L. Persaud, Y. Liu, D. Kaczorowski, J. -Xin Zhu, T. Klimczuk, M. Neupane, *Observation of topological surface state in a superconducting material*. APS March Meeting, Denver, CO, March 3, 2020.
157. G. Dhakal, M. Mofazzel Hosen, W. C. Chu, B. Singh, K. Dimitri, B. Wang, F. Kabir, C. Sims, S. Regmi, T. Durakiewicz, D. Kaczorowski, A. Bansil, and M. Neupane, *Observation of surface Dirac dispersion in transition metal dipnictides*. ANPA Conference, July 21, 2019.

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160. M. Mofazzel Hosen, K. Dimitri, A. K. Nandy, A. Aperis, R. Sankar, G. Dhakal, P. Maldonado, F. Kabir, C. Sims, F. Chou, D. Kaczorowski, T. Durakiewicz, P. M. Oppeneer and M. Neupane, *Distinct multiple fermionic states in a single topological metal* Nottingham presentation, PEC, Florida, June 4, 2019.
161. S. Regmi, G. Dhakal, M. Mofazzel Hosen, W. -Chi Chiu, B. Singh, K. Dimitri, B. Wang, F. Kabir, C. Sims, W. Neff, D. Kaczorowski, A. Bansil, M. Neupane, *Dirac State Switching in Transition Metal Diarsenides*. 2020 Annual Symposium, Florida Chapter of the AVS Science and Technology Society, University of Central Florida, Florida, March 9, 2020.
162. S. Regmi, G. Dhakal, M. Mofazzel Hosen, W. -Chi Chiu, B. Singh, K. Dimitri, B. Wang, F. Kabir, C. Sims, W. Neff, D. Kaczorowski, A. Bansil, M. Neupane, *Dirac State Switching in Transition Metal Diarsenides*. Mini March Meeting, UCF physics, University of Central Florida, Florida, March 4, 2020.
163. F. Kabir, M. Mofazzel Hosen, X. Ding, C. Lane, G. Dhakal, Y. Liu, K. Dimitri, C. Sims, S. Regmi, L. Persaud, Y. Liu, A. Pathak, J. Zhu, K. Gofryk, and M. Neupane, *Surface state single Dirac cone in magnetic material $GdxSb_{2-x}Te_3$* . Mini March meeting, Physics department, University of Central Florida, Florida, March 3, 2020.
164. F. Kabir, M. Mofazzel Hosen, X. Ding, C. Lane, G. Dhakal, Y. Liu, K. Dimitri, C. Sims, S. Regmi, L. Persaud, Y. Liu, A. Pathak, J. Zhu, K. Gofryk, and M. Neupane, *Surface state single Dirac cone in magnetic material $GdxSb_{2-x}Te_3$* . APS March meeting, Denver, Colorado, March 4, 2020.
165. F. Kabir, M. Mofazzel Hosen, G. Dhakal, X. Ding, N. Poudel, A. Pathak, Y. Liu, J. Zhu, K. Gofryk, and M. Neupane, *Electronic structure and thermal transport measurement of $GdxSb_{2-x}Te_3$* . TMS 149th annual meeting and exhibition, San Diego, California, February 5, 2020.
166. F. Kabir, M. Mofazzel Hosen, G. Dhakal, X. Ding, N. Poudel, K. Gofryk, and M. Neupane, *ARPES measurement of model metallic fuel*. TETI all-hands meeting, Purdue University, West Lafayette, Indiana, September 25, 2019.
167. F. Kabir, X. Ding, M. Mofazzel Hosen, N. Poudel, G. Dhakal, A. Pathak, M. Neupane, and K. Gofryk, *Electronic and transport properties of topological material $GdxSb_{2-x}Te_3$* . Intern Poster Session (INL), Idaho state University, Idaho Falls, Idaho, August 19, 2019.

168. F. Kabir, X. Ding, N. Poudel, T. Yao, M. Mann, J. Harp, M. Neupane, C. Marianetti, and K. Gofryk, *Electronic and thermodynamic properties of UZr₂ and ThO₂*. Energy Frontier Research Centers Principal Investigators (EFRCPI) meeting, Washington DC, July 8, 2019.
169. F. Kabir, M. Mofazzel Hosen, F. Cheenicode -Kabeer, A. Aperis, Xiixin Ding, G. Dhakal, K. Dimitri, C. Sims, S. Regmi, L. Persaud, K. Gofryk, P. Oppeneer, D. Kaczorowski, and M. Neupane, *Observation of multiple Dirac states in a magnetic topological material EuMg₂Bi₂*. ANPA Conference, July 29, 2019.
170. K. Dimitri, M. Mofazzel Hosen, B. Wang, G. Dhakal, C. Sims, S. Regmi, E. Bauer, F. Kabir, F. Ronning, and M. Neupane, *Electronic structure study of rare-earth mononictide DySb*. Symposium by Florida Chapter of the AVS Science and Technology Society, University of Central Florida, Florida, March 21, 2020.
171. K. Dimitri, M. Mofazzel Hosen, G. Dhakal, B. Wang, F. Kabir, C. Sims, S. Regmi, E. Bauer, F. Ronning, A. Bansil, and M. Neupane, *Observation of Dirac-Like Surface State in Antiferromagnetic DySb*. ANPA Conference, July 9, 2019.
172. C. Sims, M. Mofazzel Hosen, H. Aramberri, C. Huang, G. Dhakal, K. Dimitri, F. Kabir, S. Regmi, X. Zhou, T. Chang, H. Lin, D. Kaczorowski, N. Kioussis, and M. Neupane, *Termination Dependent Topological Surface States in Nodal Loop Semimetal HfP₂*. Mini March meeting, UCF Physics Department, Orlando, FL, March 3, 2020.
173. L. Persaud, C. Sims, G. Dhakal, M. Mofazzel Hosen, F. Kabir, Y. Liu, and M. Neupane, *Applications of edge detection techniques to analysis of ARPES data*. Annual Symposium, Florida Chapter of the AVS Science and Technology Society, University of Central Florida, Florida, March 21, 2020.
174. L. Persaud, C. Sims, G. Dhakal, F. Kabir, M. Mofazzel Hosen, Y. Liu, S. Regmi, K. Dimitri, and M. Neupane, *Application of edge detection techniques to ARPES data*. Mini March Meeting, UCF physics, University of Central Florida, Florida, March 4, 2020.
175. Y. Liu, J. Beetar, M. Mofazzel Hosen, G. Dhakal, C. Sims, M. Etienne, F. Kabir, K. Dimitri, S. Regmi, M. Neupane, and M. Chini, *Time- and Angle-Resolved Photoemission Spectroscopy using an Ultrafast XUV Source at 21.8 eV*. CLEO 2019, San Jose (online presentation due to COVID-19), May 3, 2019.
176. Y. Liu, M. Mofazzel Hosen, G. Dhakal, C. Sims, J. Beetar, S. Regmi, K. Dimitri, F. Kabir, D. Kaczorowski, M. Chini, and M. Neupane, *Study of hot electrons in topological nodal-line semimetal ZrSiS using time- and angle-resolved photoemission spectroscopy*. Mini March meeting, Orlando, FL, March 9, 2020.
177. Y. Liu, J. Beetar, M. Nrisimhamurthy, S. Gholam-Mirzaei, M. Mofazzel Hosen, G. Dhakal, C. Sims, M. Etienne, F. Kabir, K. Dimitri, S. Regmi, M. Neupane, and M. Chini, *High-Order Harmonic Source for Time- and Angle-Resolved Photoemission Spectroscopy based on Nonlinear Compression of a Yb:KGW Laser*. CLEO 2020, San Jose, May 4, 2020
178. L. Persaud, C. Sims, G. Dhakal, F. Kabir, Md. M. Hosen, Y. Liu, S. Regmi, K. Dimitri, M. Neupane, *Application of edge detection techniques to ARPES data*. APS March Meeting 2020, Denver, March

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 180. Y. Liu, Md. M. Hosen, G. Dhakal, C. Sims, J. E. Beetar, S. Regmi, K. Dimitri, F. Kabir, D. Kaczorowski, M. Chini, and M. Neupane, *Study of hot electrons in topological nodal-line semimetal ZrSiS using time- and angle-resolved photoemission spectroscopy*. Mini March meeting, Orlando, FL, March 4, 2020. (This conference was either cancelled or run virtually due to COVID-19, but the abstract was posted electronically).
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 183. J. R. Brescia, J. W. Cleary, E. M. Smith, and R. E. Peale, *Infrared Propagating Electromagnetic Surface Waves Excited by Induction*. MRS Advances, pp. 1-10, Boston, November 2019.
 184. F. J. Gonzalez, N. Dhakal, T. O. Boykin II, J. Mendez-Lozoya, and R. E. Peale, *Infrared Pixel Based on Seebeck Nanoantennas*, MRS Advances, pp. 1-6, Boston, November 2019.
 185. F. Gonzalez, R. Peale, S. Benis, D. Hagan, and E. Van Stryland, *Optical limiter using epsilon-near-zero grating*. Proc. IEEE RAPID (Research and Applications of Photonics in Defense), WD4.4, Miramar Beach, FL, August 19-21, 2019.
 186. P. Figueiredo and R. Peale, *Plasmonic infrared attenuator*. Proc. IEEE RAPID (Research and Applications of Photonics in Defense), TuA1.3, Miramar Beach, FL, August 19-21, 2019.
 187. R. Peale, P. Figueiredo, F. Gonzalez, and M. Ishigami, *Long-wave infrared variable emissivity combat identification panel*. Proc. IEEE RAPID (Research and Applications of Photonics in Defense), TuC1.4, Miramar Beach, FL, August 19-21, 2019.
 188. S. Calhoun, S. Demonaco, C. Spence, R. Peale, E. Smith, S. Vangala, and J. Cleary, *Multispectral plasmonic perfect absorbers integrated with room-temperature VOx air-bridge bolometers*. Proc. IEEE RAPID (Research and Applications of Photonics in Defense), TuA1.2, Miramar Beach, FL,

August 19-21, 2019.

189. D. Le, T. Jang, and T. S. Rahman, *Nitrogen vacancy on hexagonal boron nitride as single orbital catalyst: A first principles study*. 79th Physical Electroncis Conference, Orlando, FL, June 5-6, 2019.
190. Z. Hooshmand, V. Turkowski, D. Le, and T. S. Rahman, *The molecule deprotonation and the excitation spectrum of $Ag_{44}(MNBA)_2$* . 79th Physical Electroncis Conference, Orlando, FL, June 3-5, 2019.
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192. R. Berkley and T. S. Rahman, *A DFT Study of Single-Molecule Magnets (Mn3 Dimers)*. 79th Physical Electroncis Conference, Orlando, FL, June 3-5, 2019.
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194. Z. Gao, D. Le, A. Khaniya, C. L. Dezelah, J. Woodruff, R. K. Kanjolia, W. E. Kaden, T. S. Rahman, and P. Banerjee, *Self-Catalyzed, Low-Temperature Atomic Layer Deposition of Ruthenium Metal Using Zero-Valent $Ru(DMBD)(CO)_3$ and Water*. 79th Physical Electroncis Conference, Orlando, FL, June 3-5, 2019.
195. S. Joshi, D. Le, and T. S. Rahman, *Metallization of the Si(001) surface: An atomistic study using a neural network potential*. 79th Physical Electroncis Conference, Orlando, FL, June 3-5, 2019.
196. T. Jiang and T. S. Rahman, *Towards Higher Alcohol Synthesis from Syngas on 2D material-based catalysts: A First-Principles Study*. 66th Annual Symposium and Exhibition, American Vacuum Society, Columbus, Ohio, October 20-25, 2019.
197. K. L. Chagoya, T. Jiang, D. J. Nash, D. Le, T. S. Rahman, and R. G. Blair, *Selectable Catalytic Reduction of Carbon Dioxide to Formic Acid or Methanol over Defect Hexagonal Boron Nitride*. 66th Annual Symposium and Exhibition, American Vacuum Society, Columbus, Ohio, October 20-25, 2019.
198. Z. Hooshmand, P. Evans, P. Dowben, and T. S. Rahman, *Symmetry controlled adsorption of diiodobenzene on MoS_2* . 66th Annual Symposium and Exhibition, American Vacuum Society, Columbus, Ohio, October 20-25, 2019.
199. R. Berkley, Z. Hooshmand, and T. S. Rahman, *Characteristics of a Single Molecule Magnet on Graphene: A DFT Study*. 66th Annual Symposium and Exhibition, American Vacuum Society, Columbus, Ohio, October 20-25, 2019.
200. J. Shi, D. Le, V. Turkowski, N. Ud Din, T. Jiang, T. S. Rahman, and Q. Gu, *Thickness dependence of band structure of FeSe*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
201. N. Ud Din, D. Le, and T. S. Rahman, *Design of Redox active Metal Organic Chains for single site catalysis using First-principles density functional theory*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
202. T. Jiang, D. Le and T. S. Rahman, *Alcohol synthesis on MoS_2 -supported gold nanoparticle*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
203. K A M H. Siddique, R. Munir , C. Dissanayake, X. Hu, S. Yadav, Y. Takano, E. S. Choi, T. S. Rahman, D. Le, and Y. Nakajima, *Design, growth, characterization and band structure analysis of non-trivial*

- topological semimetal candidate CaSn₃*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
204. S. Joshi, D. Austin, D. Le, and T. S. Rahman, *Predicting h-BCN geometric structures using clustering and regression methods*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
205. A. Malley, D. Le, and T. S. Rahman, *Predicting diffusion barriers of Ag clusters on the Ag(111) surface using machine learning*. Florida AVS 2020 Annual Symposium, Orlando, FL, March 9-10, 2020.
206. N. Ud Din , V. Turkowski , H.-T. Chang , A. Guggenmos , M. Zuerch , S. R. Leone, and T. S. Rahman, *Ultrafast charge dynamics in bulk alpha-Fe₂O₃*. APS March Meeting, Denver, CO, March 2-6, 2020.
207. R. Berkley, Z. Hooshmand, J. X. Yu, H.P. Cheng, T. S. Rahman, *A DFT Study of Single-Molecule Magnets (Mn₃ Dimers)*. APS March Meeting, Denver, March 2-6, 2020.
208. Z. Hooshmand, R. Berkley, T. S. Rahman, *Effect of substrate on characteristics of the Mn₃ dimer*. APS March Meeting, Denver, March 2-6, 2020.
209. V. Turkowski, J. M. Galicia-Hernandez, G. Hernandez-Cocoletzi, T. S. Rahman, *Generalized nanoquanta exchange-correlation kernel and nonhydrogenic Rydberg series of excitonic binding energies in monolayer WS₂*. APS March Meeting, Denver CO, March 2-6, 2020.
210. B. Blue, G. Jernigan, D. Le, J. Fonseca, S. Lough, J. E Thompson, D. Smalley, T. Rahman, J. Robinson, M. Ishigami, *Metallicity of 2H-MoS₂ Induced by Au Hybridization*. APS March Meeting, Denver CO, March 2-6, 2020.
211. S. Lough, D. Le, B. Blue, J. E Thompson, T. Rahman, and M. Ishigami, *STM/STS of Few-Layer Topological Semimetal NiTe₂ at 78 K*. APS March Meeting, Denver CO, March 2-6, 2020.
212. K A M H. Siddique, R. Munir , C. Dissanayake, X. Hu, S. Yadav, Y. Takano, E. S. Choi, T. S. Rahman, D. Le, and Y. Nakajima, *Thermodynamic properties of non-trivial topological semimetal CaSn₃*. APS March Meeting, Denver CO, March 2-6. 2020
213. S. R. Acharya, S. Chiang, and T. S. Rahman, *Two-dimensional overlayers of Au and Ag on the Ge(111) surface: insights from first-principles calculations*. APS March Meeting, Denver CO, March, 2-6 2020.
214. D. Le, T. Jiang, K. L. Chagoya, D. J. Nash, R. G. Blair, and T. S. Rahman, *CO₂ conversion on defect-induced single-layer h-BN*. APS March Meeting, Denver CO, March 2-6, 2020.
215. J. Shi, D. Le, Q. Gu, and T. S. Rahman, *“Thickness dependence of band structure of FeSe,”* APS March Meeting, Denver CO, March 2-6, 2020.
216. T. jiang, D. Le and T. S. Rahman, *Alcohol Synthesis on MoS₂-supported Gold Nanoparticle*. APS March Meeting, Denver CO, March 2-6, 2020.
217. A. Childs, S. R. Acharya, D. Le, C. Y. Fong, S. Chiang, and T. S. Rahman, *Geometric models and electronic structure of Pb overlayers on Ge(111): a first-principles study*. APS March Meeting, Denver CO, March 2-6, 2020.

218. S. Joshi, D. Austin, D. Le, and T. S. Rahman, *Predicting h-BCN Geometric Structures Using Clustering and Regression Methods*. APS March Meeting, Denver CO, March 2-6, 2020.
219. B.-J. Niebuur, W. Lohstroh, M.-S. Appavou, A. Schulte, and C. M. Papadakis, *Water dynamics in a concentrated poly (N-isopropylacrylamide) solution at high pressure*. French-German Opportunities of Cooperation to Face the European Revolution in Neutron Science, Garching, Germany, May 14-16, 2019
220. G. P. Meledam, B.-J. Niebuur, V. Pipich, M.-S. Appavou, A. Schulte, and C. M. Papadakis. *Pressure-Dependence on Formation of Poly(N-isopropyl acrylamide) Mesoglobules above CloudPoint*. French-German Workshop on the Opportunities for Cooperation to Face the European Revolution in Neutron Science, Garching, May 14-16, 2019.
221. C.-H. Ko, K.-L. Claude, D. Schanzenbach, B.-J. Niebuur, F. A. Jung, J.-J. Kang, H. Frielinghaus, L. C. Barnsley, V. Pipich, B. Wu, A. Schulte, P. Müller-Buschbaum, A. Laschewsky, and C. M. Papadakis, *The structural and thermal behavior of the thermoresponsive polymer Poly (Nisopropylmethacrylamide) in aqueous solution*. French-German Opportunities of Cooperation to Face the European Revolution in Neutron Science, Garching, Germany, May 14-16, 2019.
222. B.-J. Niebuur, L. Chiappisi, X. Zhang, F. Jung, A. Schulte, and C. M. Papadakis, *Formation and Growth of Mesoglobules in Aqueous Poly(N-isopropylacrylamide) Solutions Revealed with Small-Angle Neutron Scattering and Fast Pressure Jumps*. European Polymer Congress, Heraklion Crete, Greece, June 9-14, 2019.
223. P. Meledam, B.-J. Niebuur, V. Pipich, M.-S. Appavou, A. Schulte, and C. M. Papadakis, *Influence of Pressure on Poly (N-isopropylacrylamide) Mesoglobules above Cloud Point*. 4th internal biennial science meeting of the MLZ, June 24-27, 2019.
224. B.-J. Niebuur, G.P. Meledam, V. Pipich, M.-S. Appavou, A. Schulte, and C. M. Papadakis, *Influence of pressure on poly(N-isopropylacrylamide) mesoglobules above cloud point*. 4th Internal Biennial Science Meeting of the MLZ, Grainau, June 24-27, 2019.
225. G. P. Meledam, B.-J. Niebuur, V. Pipich, M.-S. Appavou, A. Schulte, and C. M. Papadakis. *Structural Evolution of Poly(N-isopropylacrylamide) Mesoglobules under High Pressure*. RACIRI Summer School, August 4-11, 2019.
226. G. P. Meledam, B.-J. Niebuur, V. Pipich, M.-S. Appavou, A. Schulte, and C. M. Papadakis, *Pressure Dependent Structural Evolution of Poly (N-isopropylacrylamide) Mesoglobules above Cloud Point* Kolloid-Tagung. Complex Fluids 49th Conference of the German Colloid Society, Stuttgart, Germany, September 23-25, 2019.
227. G. P. Meledam, B.-J. Niebuur, L. Chiappisi, C.-H. Ko, S.-H. Huang, A. Schulte, C. M. Papadakis, *Structural evolution of thermoresponsive PMMA-b-PNIPAM micelles in aqueous solution revealed by time-resolved small-angle neutron scattering and rapid pressure jumps*. JCMS Workshop, Tutzing, October 7-10, 2019.

228. G. P. Meledam, C.-H. Ko, S.-H. Huang, B.-J. Niebuur, L. Chiappisi, C. Henschel, P. Müller-Buschbaum, A. Laschewsky, A. Schulte, and C. M. Papadakis, *Tuning Hydrophobicity and Aggregation Kinetics in Block Copolymer Micelles by Rapid Pressure Jumps: A Time-Resolved Small-Angle Neutron Scattering Investigation*. CompFlu 2019, IISER Bhopal India, December 5-7, 2019.
229. G. P. Meledam, L. Chiappisi, B.-J. Niebuur, C.-H. Ko, S.-H. Huang, A. Schulte, C. M. Papadakis, *Tuning Hydrophobicity and Aggregation Kinetics in Block Copolymer Micelles by Rapid Pressure Jumps: A Time-Resolved Small-Angle Neutron Scattering Investigation*. CompFlu 2019, IISER Bhopal India, December 5-7, 2019.
230. C.-H. Ko, K.-L. Claude, D. Schanzenbach, B.-J. Niebuur, F. A. Jung, J.-J. Kang, H. Frielinghaus, L. C. Barnsley, V. Pipich, B. Wu, A. Schulte, P. Müller-Buschbaum, A. Laschewsky, and C. M. Papadakis, *The structural and thermal behavior of the thermoresponsive polymer poly (Nisopropylmethacrylamide) in aqueous solution*. MLZ User Meeting 2019, Muenchen, December 10-11, 2019.
231. B.-J. Niebuur, W. Lohstroh, C.-H. Ko, M.S. Appavou, A. Schulte, and C. M. Papadakis, *Water Dynamics in Aqueous Poly(N-isopropyl acrylamide) Solutions Containing Methanol at Variable Temperature and Pressure*. American Physical Society March Meeting, M71.00156, Denver, CO, March, 2019.
232. B.-J. Niebuur, L. Chiappisi, X. Zhang, F. Jung, V. Pipich, M.-S. Appavou, A. Schulte, and C. M. Papadakis, *Kinetics of phase separation in PNIPAM solutions after pressure jumps*. Spring meeting of the German Physical Society, CPP 88.6, Dresden, Germany, March, 2020.
233. G. P. Meledam, L. Chiappisi, B.-J. Niebuur, C.-H. Ko, S.-H. Huang, A. Schulte, and C. M. Papadakis, *Kinetics of shell collapse and aggregation in thermoresponsive PMMA-b-PNIPAM micelles revealed by timeresolved smallangle neutron scattering and fast pressure jumps*. Spring meeting of the German Physical Society, CPP 24.45, Dresden, Germany, March, 2020.
234. S. Stolbov, T. Campbell, and M. Alcántara Ortigoza, *Rational Computational Design of Efficient Electro-catalysts for Hydrogen Fuel Cell Cathodes*. 79th Annual Physical Electronics Conference, Orlando, FL, June, 2019.
235. T. Campbell, M. Alcántara Ortigoza, and S. Stolbov, *Au/Ta(110) and Au/Nb(110) as Highly Active, Stable, and Inexpensive Catalysts for Oxygen Reduction Reaction on Hydrogen Fuel Cell Cathodes: Prediction from First Principles*. American Vacuum Society, Florida Chapter, Orlando, FL, March, 2020.
236. T. Campbell and S. Stolbov, *Water Photo-Oxidation Reaction on Clean and Doped Two-Dimensional Graphitic C₂N*. 79th Annual Physical Electronics Conference, Orlando, FL, June, 2019.
237. F. Abedin, N. Kandel, and S. A. Tatulian, *Segmental aggregation and structural propensities of amyloid peptide*. 64th Annual Meeting of the Biophysical Society, San Diego CA, February 15-19, 2020.

238. F. Abedin, and S. A. Tatulian, *Structure and Aggregation of A β 1-40 and Pyroglutamylated A β 3-40 Separately and Combined*. 64th Annual Meeting of the Biophysical Society, San Diego CA, February 15-19, 2020.
239. K. L Chagoya, A. Felix, F. E Torres, N. Ciaffone, T. E Pitts, A. Curbelo, L. Tetard, J. Kapat, R. G. Blair, *Thermal Degradation of Biofuels in Contact With Hot Metal Surfaces*, Turbo Expo: Power for Land, Sea, and Air; American Society of Mechanical Engineers, Phoenix, Arizona, June, 2019
240. M. Tirado, A. Kundu, L. Tetard, and S. Rajaraman, *Mems 2020, digital light processing (dip) 3d printing of millimeter-scale high-aspect ratio (har) structures exceeding 100:1*. Vancouver, Canada, 2020.
241. M. E. Vaida, *Defects engineering of 2D-TaS₂ and 2D-MoS₂: Mechanistic understanding of hydrocarbon fuels formation via CO hydrogenation reaction on 2D catalytic materials*. 79th Physical Electronics Conference, Orlando, FL, June, 2019.
242. M. E. Vaida, *Defects engineering of 2D-TaS₂ and 2D-MoS₂: Mechanistic understanding of the CO hydrogenation reaction on defect engineered 2D-TaS and 2D-MoS₂ catalysts*. National Symposium of American Vacuum Society, Columbus, OH, October, 2019.
243. Md. A. K. Pathan, A. Gupta, and M. E. Vaida, *Ultrafast molecular dynamics of CD3I on insulating and semiconducting oxide surfaces*, Symposium of the Florida Chapter of American Vacuum Society, Orlando, FL, March, 2020.
244. N. Marrow, Md. A. K. Pathan, and M. E. Vaida, *Synthesis and characterization of two dimensional TaS₂ layers on Cu(111)*. Symposium of the Florida Chapter of American Vacuum Society, Orlando, FL, March, 2020.
245. A. Gupta, Md. A. K. Pathan, and M. E. Vaida, *Femtosecond Extreme ultraviolet irradiation of H₂O ice layers on silica: understanding the dynamics of relevant astrochemical reactions*. Symposium of the Florida Chapter of American Vacuum Society, Orlando, FL, March, 2020.
246. A. Gupta, Md. A. K. Pathan, and M. E. Vaida, *Femtosecond soft X-rays photoinduced reactions in H₂O ice layers grown on silica surface*. UCF- Undergraduate Research Forum poster was submitted for online posting/publication), April, 2020.
247. Md. A. K. Pathan, A. Gupta, M. Vaida, *Ultrafast molecular dynamics of strongly adsorbed species on oxide surface*. Mini March Meeting, UCF Dept. of Physics Orlando, FL, March, 2020.

Book Chapters (8)

1. S. Han, J. Li, Z. Zhu, A. Chew, E. W. Larsen, Y. Wu, S. S. Pang, and Z. Chang, *Tabletop Attosecond X-rays in the Water Window*, Advances in Atomic, Molecular, and Optical Physics, Volume 68, (Elsevier, 2020).

2. B. Chen, *Introduction to the Fundamentals of Recoupling and Decoupling Techniques in Solid State NMR*, American Institute of Physics, Publishing LLC, manuscript due September, 2020.
3. S. Modak, L. Chernyak, I. Lubomirsky, and S. Khodorov, *Continuous and time-resolved cathodoluminescence studies of electron injection induced effects in gallium nitride*, Advanced Technologies for Security Applications NATO Science for Peace and Security Cluster Workshop on Advanced Technologies, ISBN 978-94-024-2020, Leuven, Belgium, September, 2019.
4. J. E. Colwell, *The Ringed Planet: Cassini's Voyage of Discovery at Saturn*, 2nd Edition, Institute of Physics, ISBN-13: 978-1643277158, 2019.
5. A. O'Hare, J. Tennyson, and V. Kokoouline, *Dissociative Recombination with a Scattering Matrix Approach; HeH⁺ as a Test Case*, Posmol conference, Spain, 2019.
6. T. S. Rahman and others, *Frontiers of Materials Research: A Decadal Survey*, National Academies of Sciences, Press, Washington, DC. 2019.

Other Publications (50)

1. S. Seth and A. Bhattacharya, *Polymer escape through a three dimensional Double-Nanopore System*. J. Chem. Phys, arXiv:2003.07755, 2020.
2. K. M. Cannon and D. T. Britt, Mineralogically Accurate Simulants for Lunar ISRU, and Strategic Regolith Processing. *Developing a New Space Economy Through Lunar Resources and Their Utilization*. Lunar ISRU, LPI Contribution No. **2152**, id.5002, 2019.
3. P. T. Metzger and D. T. Britt, *Mitigating Lander Plume Effects with Space Resources; Developing a New Space Economy Through Lunar Resources and Their Utilization*, Lunar ISRU, LPI Contribution No. **2152**, id.5055, 2019.
4. C. M Lisse, D. T. Britt, et al. *Pluto's Hypervolatile Surface Ices Sourced from KBO Amorphous Water Ice Composites Pluto System After New Horizons*. LPI Contribution No. **2133**, 2019, id.7037, 2019.
5. D. T. Britt, P. Metzger, and K. M. Cannon, *The CLASS Planetary Landing Team*. NESF2019-074, 2019.
6. D. T. Britt and K. M. Cannon, *The CLASS Exolith*. Lab NESF2019-082, 2019.
7. R. Peyroux, D. T. Britt, et al. *Hypervelocity impacts on carbonaceous asteroids analogue materials*. EPSC-DPS Joint Meeting, 2019.
8. R. Peyroux, D. T. Britt, et al. *Mechanical properties of asteroids analog materials*. EPSC-DPS Joint Meeting, 2019.
9. J. M. Moore, W. B. McKinnon, J. R. Spencer, S. A. Stern, D. T. Britt, et al. *Scarp Retreat on MU69: Evidence and Implications for Composition and Structure*. EPSC 2019, EPSC-DPS2019-50, 2019.

10. H. A. Weaver, C. M. Lisse, M. R. El-Maarry, D. T. Britt, et al. *Comparing KBO (486958) MU69 to JFC Nuclei EPSC*, EPSC-DPS2019-1135, 2019.
11. K. Cannon and D. T. Britt, *Highlights of Science and Exploration Activities at the SSERVI CLASS Node*. EPSC 2019, EPSC-DPS2019-1057, 2019.
12. L. Pohl and D. T. Britt, *The Dehydration and Alteration of Cronstedtite*. EPSC-DPS2019 Geneva-2054, 2019.
13. A. C. Schuerger, and D. T. Britt, *Fast Degassing Rates Under Simulated Martian Conditions Indicate that Rock Void Spaces are Unlikely to Maintain Habitable Conditions on Mars*. Mars Extant Life: What's Next? LPI Contribution No. **2108**, 2019, id.5004, 2019.
14. M. Peppin, C. Schultz, D. T. Britt, P. T. Metzger, K. Cannon, and Z. Landsman, *Developing a Standard Method to Test Rheology of Regolith Simulants*. AGUFM 2019, P31C-3469, 2019.
15. L. Pohl and D. T. Britt, *The Dehydration and Alteration of Serpentine Minerals Under Vacuum*. 51st Lunar and Planetary Science Conference, 3045, 2020.
16. J. M. Moore, D. T. Britt, et al. Scarp Retreat on (486958) Arrokoth: Evidence and Implications for Composition and Structure. 51st Lunar and Planetary Science Conference, 1691, 2020.
17. K. M. Cannon, D. P. Moriarty, and D. T. Britt, *Lunar Volatile Speedtrap Effect Enhanced by the South Pole-Aitken Basin*. 51st Lunar and Planetary Science Conference, 1491, 2020.
18. C. M. Lisse, et al. *On the Origin and Stability of Pluto's and MU69's Ices*. 51st Lunar and Planetary Science Conference, 1972, 2020.
19. K. Murari, F. Zhou, Y. Yin, Y. Wu, B. Weaver, T. Avni, E. Larsen, Z. Chang, *Ho:YLF amplifier with Ti:Sapphire frontend for pumping mid-infrared optical parametric amplifier*. arxiv.org/abs/2004.12648, 2020.
20. J. Chini, *Active Learning Isn't Enough: Cultivating Inclusive Learning Environments for the Society of Physics Students*. SPS Observer, 2019.
21. J. E. Colwell, R. G. Jerousek, T. M. Becker, and L. W. *Cassini Orbiter Saturn UVIS Ring Stellar Occultations 2.0, CO-SR-UVIS-2/4-OCC-V2.0*. NASA Planetary Data System, Esposito 2019.
22. B. T. Bolin, D. Bodewits, C. M. Lisse, M. Carey, Y. R. Fernandez, G. Helou, and S. B. Cenko, *Possible fragmentation of interstellar comet 2I/Borisov*. Astronomer's Telegram #13613, April, 2020.
23. J. M. Bauer, A. K. Mainzer, E. A. Kramer, T. Grav, J. R. Masiero, Y. R. Fernandez, M. S. P. Kelley, S. Protopapa, T. Spahr, K. J. Meech, R. M. Cutri, D. Milewski, C. M. Lisse, and E. L. Wright, *NEOWISE CO upper limits of 2I/Borisov*, Astronomer's Telegram #13407, January 2020.

24. C. Schambeau, Y. Fernandez, M. De Pra, M. Womack, N. Pinilla-Alonso, G. Sarid, M. Micheli, L. Woodney, S. Ieva, N. Samarasinha, E. Mazzotta Epifani, E. Dotto, D. Perna, A. S. Bosh, M. Levine, J. Maxwell, and S. E. Levine, *Comet 39P/Oterma*. Central Bureau Electronic Telegram #4652, July, 2019.
25. M. D. Himes, J. Harrington, A. D. Cobb, A. G. Baydin, F. Soboczanski, M. D. O’Beirne, S. Zorzan, D. C. Wright, Z. M. D. Scheffer, S. D. Domagal-Goldman, and G. N. Arney, *Accurate machine learning atmospheric retrieval via a neural network surrogate model for radiative transfer*. PSJ, submitted. ArXiv:2003.02430v1 (preprint), 2020
26. J. Harrington, M. D. Himes, P. E. Cubillos, J. Blecic, P. M. Rojo, R. C. Challener, N. B. Lust, M. O. Bowman, S. D. Blumenthal, I. Dobbs-Dixon, A. S. D. Foster, A. J. Foster, M. R. Green, T. J. Lored, K. J. McIntyre, and M. M. Stemm, *The Bayesian Atmospheric Radiative Transfer (BART) code: 3D mapping and machine learning*. AAS Meeting Abstracts, 173.13, 2020.
27. K. J. McIntyre and J. Harrington, and S. S. Eikenberry, *Transit spectroscopy with MIRADAS*. AAS Meeting Abstracts, 116.02, 2020.
28. Z. Scheffer, J. Harrington, R. C. Challener, and K. J. McIntyre, *EDGAR: Automating POET for analysis for HD 209458b eclipse light curves*. AAS Meeting Abstracts, 115.04, 2020.
29. M. R. Green, R. C. Challener, M. D. Himes, J. Blecic, and P. Cubillos, *An analysis of the orbit and atmosphere of WASP-17b as revealed by Spitzer*. AAS Meeting Abstracts, 122.05, 2020.
30. R. C. Challener, *Exoplanets: Correlated noise and cautionary tales*. AAS Meeting Abstracts, 409.05, 2020.
31. M. D. Himes, A. D. Cobb, F. Soboczanski, S. Zorzan, M. D. O’Beirne, A. G. Baydin, Y. Gal, D. Angerhausen, S. Domagal-Goldman, and G. Arney, *Machine learning retrieval of Jovian and terrestrial atmospheres*. AAS Meeting Abstracts, 343.01, 2020.
32. J. Harrington, M. D. Himes, P. E. Cubillos, J. Blecic, P. M. Rojo, R. C. Challener, N. B. Lust, M. O. Bowman, S. D. Blumenthal, I. Dobbs-Dixon, A. S. D. Foster, A. J. Foster, M. R. Green, T. J. Lored, K. J. McIntyre, and M. M. Stemm, *The Bayesian Atmospheric Radiative Transfer (BART) code in the JWST era*. In Joint EPSC-DPS Meeting, Volume **13** of EPSC Abstracts, pp. 1238, 2019.
33. A. Antuñano, L. N. Fletcher, G. S. Orton, H. Melin, S. Milan, J. Rogers, T. Greathouse, J. Harrington, R. Giles, and P. T. Donnelly, *Jupiter’s atmospheric variability from long-term ground-based observations at 5 microns*. In Joint EPSC-DPS Meeting, Volume **13** of EPSC Abstracts, pp. 452, 2019.
34. R. C. Challener, and J. Harrington, *A comprehensive Spitzer study of GJ 436b*. In AAS/Extreme Solar Systems Abstracts, Volume **51**, pp. 313.09, 2019.
35. K. J. McIntyre, J. Harrington, R. C. Challener, M. A. Reinhard, M. R. Green, Z. Scheffer, C. Jordan, P. Jochum, and C. Millwater, *The current state of Spitzer secondary eclipse analyses: HD 209458b*. In AAS/Extreme Solar Systems Abstracts, Volume **51**, pp. 313.11, 2019.

36. J. Harrington, *An exoclines scale for life above the atmosphere*. Presented at the ExoClimes V Workshop, Oxford, UK, August, 2019.
37. K. J. McIntyre, J. Harrington, R. C. Challener, M. A. Reinhard, M. R. Green, Z. Scheffer, C. Jordan, P. Jochum, and C. Millwater, *The current state of Spitzer secondary eclipse analyses: HD 209458 b*. Presented at the ExoClimes V Workshop, 12–15 August 2019, Oxford, UK, 2019.
38. R. C. Challener and J. Harrington, *A comprehensive Spitzer study of the GJ 436b eclipses*. Presented at the ExoClimes V Workshop, Oxford, UK, August 2019.
39. A. Khaniya, S. Ezzat, W. Kaden, and K. Coffey, *Effect of Oxide Encapsulation on Resistivity and Surface Scattering of Ru (0001) Films*. TECHON Manuscript, TX, September, 2019.
40. J. Park, M. Lee, B. Lee, N. Castaneda, L. Tetard, and E. H. Kang, *Crowding tunes the organization and mechanics of actin bundles formed by crosslinking proteins*. FEBS Letters (Under Review, Major revision), April, 2020.
41. J. Hwang, M. Lee, E. H. Kang, and W. Lee, *The role of acetate in wastewater for O₂ control on green algal photosystem II for photobiological hydrogen production*. Energy (Under Review), April, 2020.
42. M. Suttinger, R. Kaspi, A. Lyakh, *High-brightness quantum cascade lasers in Mid-infrared Optoelectronics*. Ch. 5, p. 181-205, Woodhead Publishing Series in Electronic and Optical Materials, 2020.
43. A. Lyakh, *Quantum cascade lasers*. Advances in High-Power Fiber and Diode Laser Engineering, IET, Ch. 4, 2019.
44. B.-J. Niebuur, A. Schulte, and C. M. Papadakis, *What can pressure do for the understanding of thermoresponsive polymers?* Hellenic Neutron Association Newsletter, No 5, p.1, October, 2019.
45. B.-J. Niebuur, W. Lohstroh, M.-S. Appavou, A. Schulte, and C. M. Papadakis, *Water dynamics in a concentrated poly(N-isopropylacrylamide) solution at variable pressure*. Annual report, Chair of Functional Materials, Physics Department, TU, Munich, 2019.
46. B.-J. Niebuur, L. Chiappisi, F. A. Jung, X. Zhang, A. Schulte, and C. M. Papadakis, *Kinetics of mesoglobule formation and growth in aqueous poly(N-isopropylacrylamide) solutions: role of the target pressure*. Annual report, Chair of functional materials, Physics Department, TU Munich, 2019.
47. G. P. Meledam, C.-H. Ko, S.-H. Huang, B.-J. Niebuur, L. Chiappisi, C. Henschel, A. Laschewsky, A. Schulte, and C. M. Papadakis, *Small-angle neutron scattering investigations on the phase behavior and structural modifications of PMMA-b-PNIPAM micelles in aqueous solutions*. Annual report, Chair of functional materials, Physics Department, TU, Munich, 2019.
48. F. Abedin, N. Kandel, and S. A. Tatulian, *Segmental aggregation and structural propensities of amyloid β peptide*. 64th Annual Meeting of the Biophysical Society, *Biophys. J.*, 118 (3), 203a–204a (Conference Proceedings Abstract), San Diego CA, February, 2020.

49. F. Abedin and S. A. Tatulian, *Structure and Aggregation of A61-40 and Pyroglutamylated A63-40 Separately and Combined*. 64th Annual Meeting of the Biophysical Society, San Diego CA, February, 2020. *Biophys. J.*, 118 (3), 204a.
50. S. K Cushing, I. J Porter, B. R Lamoureux, A. Lee, B. M Marsh, S. Szoke, M. E Vaida, and S. R Leone, *Layer-Resolved Ultrafast XUV Measurement of Hole Transport in a Ni-TiO₂-Si Photoanode*, arXiv preprint arXiv:1905.13097, Slightly modified, submitted & published in Science Advances, 2019.

Invited Presentations (115)

Argenti (1)

1. *Circular Holographic Ionization Phase Meter*. PQE 2020, Snowbird, Utah, January, 2020.

Bennett (4)

1. *Potential pathways to O₂ observed in comets 67P/Churyumov-Gerasimenko and 9P/Tempel: Dissociation of radiolytically produced parent carbon oxide species*. 71st Southeastern Regional Meeting of the American Chemical Society, Savannah, GA., October, 2019.
2. *Surface Science Studies Relevant to Planetary Science and the Interstellar Medium*. Florida Tech, Department of Physics and Astronomy, Technical Talk, January, 2020.
3. *The Origin of Life from the Interstellar Medium to Life on Earth*. Florida Tech Planetarium, Public Talk, January, 2020.

Bhattacharya (3)

1. *Scaling Theory of Driven Polymer Translocation through a Double Nanopore*. the 33rd Annual workshop Recent Developments in Computer Simulational Studies in Condensed Matter Physics, Center for Simulation Physics, The University of Georgia, Athens, February, 2020.
2. *DNA folds inside a Nanochannel: scaling and non-equilibrium dynamics*. SISSA, Trieste, Italy, May, 2019.
3. *Dynamics of folding of a DNA segment inside a nano-channel*. Institute for Physics, Gutenberg University, Mainz, Germany, June 2019.

Britt (4)

1. *Economics and Exploration: historical perspective on our new age of exploration*. ESA and Luxembourg Space Agency Space Resources Week, Luxembourg City, October, 2019.
2. *Mineral Evolution*. Luxembourg Space Agency Mining Space Summit. Luxembourg City, October, 2019.

3. *The Economic Geology of Lunar and Asteroid Resource*. Luxembourg Space Agency Mining Space Summit 2019, Luxembourg City, October, 2019.
4. *Economics and Exploration: A Bit of Historical Perspective on our New Age of Exploration*. Space Resources Roundtable, Golden CO, June, 2019.

Campins (3)

1. *Update on NASA's OSIRIS-REx Asteroid Sample Return Mission*. American Association of Physics Teachers, Orlando, FL, January, 2020.
2. *Update on NASA's OSIRIS-REx Asteroid Sample Return Mission*. Institute of Astrophysics of the Canaries, Tenerife, Spain, May, 2019.
3. *Update on NASA's OSIRIS-REx Asteroid Sample Return Mission*. UCF's Astronomy Society, November, 2019.

Chanda (7)

1. *Tunable Nanophotonics Devices*. OSA-Harvard Flat Optics Conference, Washington DC, February, 2020.
2. *Dirac Plasmon-Assisted Asymmetric Hot Carrier Generation for Room-Temperature Infrared Detection*. II-VI Conference, Chicago, November, 2019.
3. *Skin-like Full-Color Angle Independent Plasmonic Reflective Displays*. IEEE IPC Conference, San Antonio, Tx, October, 2019.
4. *Bio-inspired Uncooled Multi-Spectral Infrared Imaging with mK Range Temperature Resolution*. IEEE RAPID Conference, Pensacola, FL, August, 2019.
5. *Hybrid Plasmonic Sensor for the Detection of Neurotransmitters Directly from the Blood*. ICMAT Conference, Singapore, June, 2019.
6. *Adaptive Infrared Signal Control*. NGA/DoD, Washington DC, March, 2020
7. *Dirac-Plasmon Assisted Low Energy Photon Detection*. Indian Institute of Technology (IIT), Kharagpur, June, 2019.

Chang (9)

1. *Tabletop Ultrafast X-rays for Metrology of Magnetic Materials*. DARPA TEE Review Meeting, Charlottesville, VA, January, 2020.
2. *Attosecond transient absorption spectroscopy at nitrogen K edge*. Joint AFORS-ARO Attosecond MURI Review, Arlington, VA, November, 2019.

3. *High power MIR lasers for generating attosecond water window X-rays.* Joint AFORS-ARO Attosecond MURI Review, Arlington, VA, November, 2019.
4. *Frontier of attosecond source development and applications.* Frontier Science and Applications of Attosecond Light Source, Beijing, China, August, 2019.
5. *Novel high-power infrared lasers for attosecond science.* The 12th International Symposium on Photonics and Optoelectronic, Xi'an, China, August, 2019.
6. *Attochirp compensation and characterization beyond C K-edge.* 7th International Conference on Attosecond Science and technology, Szeged, Hungary, July, 2019.
7. *Tabletop Ultrafast X-rays for Metrology of Magnetic Materials.* DARPA TEE Program Review, Arlington, VA, USA, June, 2019.
8. *Novel mid-infrared lasers for pushing the attosecond science frontier.* 21st Photonics North Conference, Quebec City, Canada, May, 2019.
9. *Attosecond X-rays Reached the Water Window.* The University of Georgia, Athens, Georgia, September, 2019.

B. Chen (1)

1. *A site-specific comparison of the pentameric and hexameric assembly of the rous sarcoma virus capsid protein.* Gainesville, FL, October, 2019.

Chernyak (5)

1. *Radiation hard UV detectors against terrorist threats.* NATO SPS Cluster Workshop on Advanced Technology at Electrical Engineering Department, KU Leuven, September, 2019.
2. *Radiation and Electron-Injection Induced Effects in Ga₂O₃ Schottky Rectifiers.* 19 American Institute of Chemical Engineers Annual Meeting, Orlando, FL, November, 2019.
3. *Electron Injection-Induced Effects in Wide and Ultra-Wide Bandgap Semiconductors.* School of Electrical Engineering, Tel Aviv University, Israel, September, 2019.
4. *Elemental and optical studies of Ohmic contacts to AlGa_N/Ga_N structures.* Weizmann Institute of Science/Israel Ministry of Defense, Rehovot, Israel, December, 2019.
5. *Electron Beam-Induced Current measurements of minority carrier diffusion in n+-Germanium.* Padua University, Italy, October, 2019.

J. Chini (8)

1. *Improving Physics Instruction with the Undergraduate Physics Pedagogy Course at the University of Central Florida*. American Association of Physics Teachers, Winter Meeting, Orlando, FL, January, 2020.
2. *Estimating Graduation Rates using Bayesian Updates to a Markov Model*. American Association of Physics Teachers Winter Meeting, Orlando, FL, January, 2020.
3. *Inclusive Teaching Strategies Can Increase Accessibility in Physics Education*. American Association of Physics Teachers Summer Meeting, Provo, Utah, July, 2019.
4. *What are the Supports and Barriers in Introductory Physics Curricula for Students with Disabilities?* American Association of Physics Teachers Summer Meeting 2019, Provo, Utah, July, 2019.
5. *Exploring Assumptions of Dis/Ability in Physics Education*. Physics Education Research Conference, July, 2019.
6. *Making Room in Physics for Everyone*. Society of Physics Students' PhysCon, Providence, RI, November, 2019.
7. *What Are the Supports and Barriers in Introductory Physics Curricula for Students with Disabilities?* The American Association of Physics Teachers conference, Provo, UT, July, 2019.
8. *Dis/Ability in the Physics Learning and Research Communities*. San Jose State University, May, 2019.

M. Chini (2)

1. *Symmetry and High Harmonic Generation from Crystalline Solids*. 2020 Winter Colloquium on the Progress in Quantum Electronics, Snowbird, UT, January, 2020.
2. *Towards attosecond spectroscopy with industrial-grade lasers*. AMO seminar, Dept. of Physics, Stonybrook University, October, 2019.

Chow (1)

1. *Nanosensors: Current Status and Perspectives*. ICNBME-2019, The 4th International Conference on Nanotechnologies and Biomechanical Engineering, Chisinau, Moldova, September, 2019.

Del Barco (5)

1. *Sub-Terahertz Coherent Spin Pumping from Antiferromagnets*. SPICE Workshop on Ultra-fast Spintronics, Mainz, Germany, October, 2019.
2. *Terahertz Spin Injection from an Insulating Antiferromagnet*. IMDEA Universidad Autonoma de Madrid, Madrid, Spain, February, 2020.

3. *Terahertz Spin Injection from an Insulating Antiferromagnet*. Nanogunen (Institute of Nanotechnology), Universidad del Pais Vasco, San Sebastian, Spain, February, 2020.
4. *Terahertz Spin Injection from an Insulating Antiferromagnet*. Join Physics and Chemistry Departments, Universidad de Barcelona, Barcelona, Spain, February, 2020.
5. *Terahertz Spin Injection from an Insulating Antiferromagnet*. New York University, Center for Quantum Phenomena, New York City, NY, November, 2019.

Donaldson (1)

1. *Taking the Temperature of Solar System Airless Bodies*. Insights from NASA's LRO and OSIRIS-REx Missions colloquium, Institut d'astrophysique et de planétologie de Grenoble, Université Grenoble Alpes, Grenoble, France, May, 2019.

Dove (4)

1. *Walkabout the Galaxy: The Accidentally Educational Astronomy Podcast*. AAPT Winter Meeting, Abstract #GH05, Orlando, FL, January, 2019.
2. *Operations and Mining in Microgravity - Understanding the Environment*. SSERVI-CLASS Graduate Seminar, UCF, Orlando, FL, March, 2020.
3. *Flying Experiments to Explore low-gravity planetary regolith interactions*. Jack and Ann Waddey Seminar, Auburn University, Auburn, AL, February, 2020.
4. *Regolith Dynamics on Planetary Surfaces*. UCF Physics Colloquium, Orlando, FL, February, 2020

Feng (5)

1. *Understanding metal-based catalysts for electrochemical ammonia synthesis*. 235th ECS Meeting, Dallas, TX, May, 2019.
2. *Electrochemical catalysis at grain-boundary surface sites*. 79th Physical Electronic Conference, Orlando, FL, June, 2019.
3. *Pd-catalyzed electrohydrogenation of dinitrogen to ammonia*. AIChE Annual Meeting, Orlando, FL, November, 2019.
4. *Rational Design of Metal Nanocatalysts for Electrochemical Fuel Synthesis*. AVS Florida Chapter, Orlando, FL, March, 2020.
5. *Reducing our reliance on fossil fuels by electrocatalytic synthesis*. Department of Chemistry, Lehigh University, Bethlehem, PA, November, 2019.

Flitsiyan (2)

1. *Assessment of the Effect of Service Learning in Introductory Physics on Students Learning and Critical Thinking*. International Conference on Teaching Physics, Athens, Greece, July, 2019.
2. *Time-Resolved Cathodoluminescence Studies in Ultra-Wide Bandgap Oxides*. Honors Seminar Series, Seminole State College, November, 2019.

Ishigami (1)

1. *Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes: understanding the impact of a model scatterer for nanoscale sensors*. Tokyo Metropolitan University, Tokyo, Japan, June, 2019.

Kaden (5)

1. *A brief discussion of key physico-chemical relationships responsible for shaping heterogeneous catalysis*. AVS Short Course on Catalysis and Catalytic Materials, Orlando, FL, March, 2020.
2. *Epitaxial Thin-Films as analogue materials for model catalysis and beyond*. 5th Euro-Mediterranean Conference on Materials and Renewable Energies (EMCMRE-5) (Marrakech, Morocco, June, 2019).
3. *Epitaxial Thin-Films: From Soup to Nuts*. Department of Physics, University of Central Florida, Orlando, FL, February, 2020.
4. *Epitaxial Thin-Films: From Soup to Nuts*, Department of Chemistry. University of Utah, Salt Lake City, FL, February, 2020.
5. *Using well-defined thin-films to model the properties of practical interfaces and surface mediated processes*. Student Research Community/Vector Presentation Series, Valencia College, Orlando, FL, September, 2019.

Kang (3)

1. *Actin biomechanics and mechanobiology in complex cellular environments*. Department of Mechanical and Aerospace Engineering, UCF, Orlando, FL, February, 2020.
2. *Molecular Biophysics and Biomechanics of Actin Cytoskeleton: Implications for Human Disease*. Korean-American Scientists and Engineers Association Chapter Meeting, Orlando, FL, December, 2019.
3. *How molecular crowding modulates actin filament mechanics and structure*. Biophysical and Physical Chemistry Symposium, FL ACS Annual Meeting, Tampa, FL, May, 2019.

Kara (2)

1. *UM6P: Tutorial on Computational Material Science: Kinetic Monte Carlo (KMC)*. University Mohamed 6 Polytechnique, Benguerir, Morocco, June, 2019.

2. *UM6P: Short courses on Nano-science and technology*. University Mohamed 6 Polytechnique, Benguerir, Morocco, December, 2019.

Khondaker (1)

1. *Investigation of Interfacial Charge Transfer Doping of 2D MoS₂*. 236th ECS meeting, Atlanta, October, 2019.

Klemm (4)

1. *Microscopic theory of the Knight shift in anisotropic superconductors*. Vortex 2019 Antwerpen, May, 2019.
2. *Theory of the quantum spin Hall effect in two-dimensional metals*. Electronic Materials and Applications 2020 conference, Orlando, FL, January, 2020.
3. *Dimensionality of the Zeeman interaction in conductors*. 2020 APS March Meeting, Orlando, FL, March, 2020.
4. *Theory of the quantum spin Hall effect in two-dimensional metals*. TecEdge Innovation Center, Dayton OH, August, 2019.

Kokoouline (7)

1. *Recent progress in theoretical treatment of dissociative recombination of small molecular ions*. The Molecular Underpinnings of Astrophysics, Telluride, Colorado, January, 2020.
2. *Recent advances in theoretical studies of electron-impact excitation and dissociation of molecules*. DYMCOM: Dynamics of Cold Molecules, Institut Pascal, Université de Paris XI, Orsay, France, November, 2019.
3. *The quantum defect approach for vibronic resonances in the collisions of electrons with molecular ions*. Challenges in Plasmas and Catalysis, Le Havre, France, October, 2019.
4. *Electronic, vibrational, and rotational excitation of polyatomic ions using Quantemol and quantum defect theory*. R-MADAM, University College, London, UK, June, 2019.
5. *Recombinaison dissociative d'ions moléculaires*. Processus physico-chimiques d'intérêt astrophysique : Les chimie des ions, Saint-Florent, France, June, 2019.
6. *Universal theoretical approach for determination of cross sections for dissociative recombination, rotational, vibrational, electronic excitation of molecular ions*. Laboratory Astrophysics in the Era of Multi-messenger Astronomy, Clemson, SC, May, 2019.
7. *Evaluation of theoretical and experimental cross sections for rotational and vibrational excitation of the H₂O molecule in collisions with electrons*. Expert meeting on evaluation of cross

sections for electron-molecule-collisions, the National Fusion Research Institute, Seoul, South Korea, May, 2019.

Lyakh (6)

1. *High Brightness, Broad-Area Continuous Wave Quantum Cascade Lasers*. Defence + Security Europe, Strassburg, France, 2019.
2. *Quantum cascade lasers on lattice-mismatched substrates*. ITQW, Ojai, CA, 2019.
3. *Design of External Cavity Quantum Cascade Lasers for Combustion and Explosion Diagnostics*. IEEE Research and Applications of Photonics in Defense Conference (RAPID), Miramar Beach, FL, 2019.
4. *Novel diagnostic technique for ultra-fast, simultaneous temperature and concentration measurements for harsh hypersonic flows*. 23rd AIAA International Space Planes and Hypersonic Systems and Technologies Conference, Montreal, Quebec, Canada, 2020
5. *Time-Resolved, Laser-Absorption Temperature Measurement in Shock Heated Mixtures with Reduced Beam Steering and Emission Noise*. IEEE Research and Applications of Photonics in Defense Conference (RAPID), Miramar Beach, FL, 2019.
6. *Second-Order Distributed Feedback Quantum Cascade Lasers with Non-Rectangular Grating Shape*. Photonics West, San Francisco, CA, 2020.

Nakajima (1)

1. *Nematic superconductivity in a topological semimetal*. Okayama, Japan, September 2019.

Neupane (4)

1. *Experimental realization of topological Insulators and beyond*. Colloquium, Buffalo State College, February, 2020
2. *Distinct multiple fermionic states in a single topological metal*. APS March meeting, Denver Colorado, March, 2020
3. *ARPES measurements of model metallic fuel*. Thermal Energy Transport under Irradiation (TETI) All-Hands meeting, Purdue University, West Lafayette, Indiana, September, 2019.
4. *Illumination of the Emergent Quantum Materials by Attosecond Pulses*. AFOSR Program Review, Arlington, VA, June, 2019.

Rahman (13)

1. *Activating single-layer MoS₂ for conversion of syn gas to higher alcohols: insights from theory*. ACS 2020 Spring Annual Meeting, March, 2020, Philadelphia, (presented electronically).

2. *Single-Molecule Magnets on Two Dimensional Materials: insights from ab initio calculations.* MAGNA 2020, St. Simon Island, February, 2020.
3. Modelling functional low dimensional materials. Conference for Undergraduate Women in Physics, University of Oklahoma, Norman, January 17-19, 2020.
4. APS Bridge Site at UCF: background & some highlights. Conference for Undergraduate Women in Physics, University of Oklahoma, Norman, January 17-19, 2020.
5. *Tuning properties of 2D materials: from catalytic activity to single photon emission.* Computational Material Design Symposium, Quaid-e-Azam University, Islamabad, Pakistan, December 20, 2019.
6. *Toward Efficient Methods for Generating Transferable Neural-Network Interatomic Potentials.* Computational Material Design Symposium, Quaid-e-Azam University, Islamabad, Pakistan, December, 2019.
7. *Challenges for Young Women Embarking on a Career in Science.* Organization for Women in Science in the Developing World (OWSD), Pakistan National Chapter, Karachi, December, 2019.
8. *Toward efficient methods for generating transferable artificial neural network interatomic potentials.* Materials Research Society 2019 Fall Meeting, Boston, December, 2019.
9. *2D materials for conversion of syn gas to higher alcohols: the role of defects and dopants.* 2019 Gordon Research Conference on Dynamics at Surfaces, Salve Regina University, Newport, Rhode Island, July - August, 2019.
10. *Tuning properties 2D materials: from catalysis to single photon emission.* FKF-MPI, Stuttgart, July, 2019.
11. *Tuning properties of 2D materials: from catalytic activity to single photon emission.* Seminar, Max Planck Institute for Solid State Physics, July, 2019.
12. *Tuning properties 2D materials: from catalysis to single photon emission.* 9th International Workshop on Surface Physics (IWSP), Trzebenica, Poland, June, 2019.
13. *Beyond DFT Methods that Capture the Role of Electron Correlations: Ultrafast Demagnetization of Ni.* 2nd MGI & Exascale Symposium, Spetses, Greece, June, 2019.

Schelling (1)

1. *Materials-specific tight-binding models with applications to electron transport.* nCore e Workshop, Semiconductor Research Corporation, February, 2020

Schulte (3)

1. *Formation and Growth of Mesoglobules in Aqueous Poly(N-sopropylacrylamide) Solutions.*

ACS 95th Florida Meeting and Annual Exposition (FAME), Innisbrook FL, May, 2019

2. *High-pressure behavior of PNIPAM in aqueous solution: Hydration behavior, segment and water dynamics and the growth of mesoglobules.* JCNS Workshop 2019 Trends and Perspectives in Neutron Instrumentation: Probing Structure and Dynamics in Soft Matter, Tutzing, Germany, October, 2019.
3. *High pressure Experiments on Aqueous PNIPAM Solutions.* University of Regensburg, High Pressure NMR group, June, 2019.

Tetard (6)

1. *Manipulating light-matter interaction to explore properties of organic and biological systems at the nanoscale.* 4th Annual European Forum on Nanoscale IR Spectroscopy, Amsterdam, Netherlands, September, 2019.
2. *SERMACS 860: Applications of nanoscale functional imaging to reveal the role of heterogeneities in complex systems for sustainable energy applications.* The 71st Southeastern Regional Meeting of the American Chemical Society, Chemistry on the Coast, Savannah, GA, October 22, 2019.
3. *Multifunctional nanoscale imaging to explore lignocellulosic biomass and their derivatives at the nanoscale.* Sungrant Directors Meeting, Tennessee, January, 2020.
4. *Grad School 102: Applying and Thriving.* APS National Mentoring Committee, Orlando, FL, February, 2020.
5. *Nanoscale functional imaging of 2D materials for energy.* 5th Euro-Mediterranean conference on materials and renewable energies, nanoelectronics and catalysis applications, Marrakech, Morocco, June, 2019.
6. *Nanoscale infrared spectroscopy to explore materials properties at the nanoscale.* Florida International University, Miami, FL, September, 2019.

Turkowski (2)

1. *Excitations and ultrafast charge dynamics in strongly-correlated and other novel materials.* Department of Physics, St. Bonaventure University (St. Bonaventure, NY, February 2020).
2. *Effects of strong charge correlations in novel materials: static properties and ultrafast charge dynamics.* Department of Physics, South Dakota School of Mines and Technology, (Zoom presentation), Rapid City, SD, March 2020.

Vaida (1)

1. *Introduction in photocatalysis.* AVS short course on Catalysis and Catalytic Materials, Orlando, FL, March, 2020

Patents Awarded (7)

1. L. Chernyak, R. Peale, C. J. Fredricksen, and J. Lee, *Infrared sensor device, has image sensor comprising array of sensing pixels, and controller coupled to readout circuit and configured to cause readout circuit to apply voltage to infrared image sensor between set of sequential images*. US Patent No. US2019234803-A1, May, 2019.
2. D. Chanda and A. Safaei, *Extraordinary dynamically tunable absorption in monolayer graphene*. US Patent No. 10,312,389 B2. June, 2019.
3. D. Chanda and D. Franklin, *Dynamically Tunable, Single Pixel Full-color Plasmonic Display. method and Applications*, US Patent No. 10,175,547 B2. January, 2019.
4. A. Lyakh, *Method for making quantum cascade laser with angled active region*. 34039 (0126021-DIV1), ASN 16/401,515 (Allowed 5-28-2020)
5. A. Lyakh and M. Suttinger, *QCL with wide active region and thinned stages and related methods* 33907. ASN 16/029,947, U.S. Patent No. 10,673,208. June 2020.
6. A. Lyakh, *Quantum cascade laser with angled active region and related methods*. U.S. Patent No. 10,355,449. July 2019.
7. Y. Rudzovich, Y. Lin, and L. Chow, *Capillary Ionic Transistor*. US Patent No. 10,352,898. July 16, 2019.

Disclosures and Patent Applications (10)

1. D. Chanda and D. Franklin, *Inorganic Angle Independent paint Pigment with Bi-Directionally symmetric Self-Assembled Alluminium Particle-Oxide_Alluminium Reflector Layer and Related Methods*. Provisional US Patent: 62/777,849, Decemer 11, 2019.
2. D. Chanda and S. Chandra, *Actively tunable photonic device for multispectral infrared camouflage*. Provisional US Patent: 62/814,368, 2019.
3. R. G. Blair, K. Chagoya, A. Felix, D. Le, and T. S. Rahman, *Catalyst for the Realization of Propylene from Syngas*. Filed Pattern disclosure with Office of Technology Transfer on October 24, 2019
4. A. Lyakh and M. Suttinger, *Method of making QCL with optimized brightness and related methods*. 34353 (0130904), ASN 16/871,270, Provisional 62/847,479, May, 2019.
5. A. Lyakh and M. Suttinger, *Tree Array Quantum Cascade Lasers Based on Broad Area Emitters*. UCF Billing Number: 34422 (0132769), June, 2020.

6. M. D. Himes, J. Harrington, A. D. Cobb, A. Günes , Baydin, F. Soboczenski, M. D. O’Beirne, S. Zorzan, D. C. Wright, Z. M. D. Scheffer, S. D. Domagal-Goldman, and G. N. Arney, *MARGE: Machine Learning Algorithm for Radiative Transfer of Generated Exoplanets: Derives machine-learning algorithm for radiative transfer from set of spectra and inputs*, 2020.
7. M. D. Himes, J. Harrington, D. C. Wright, and Z. M. D. Scheffer, *HOMER: A Bayesian inverse modeling code: Atmospheric retrieval using machine-learning radiative transfer*, 2020.
8. D. Chanda and D. Franklin, *Plasmonic Aluminium Particle based Display Device and Related Methods*. Provisional US Patent: 16/710507, December, 2019.
9. D. Chanda, M. N Leuenberger, A. Safaei, and S. Chandra, *Plasmon-Assisted Photo-thermoelectric Effect-Based Detection of Infrared Radiation on Asymmetrically Patterned Graphene*. US Patent App. 16/555,449, 2019.
10. R. G. Blair, K. Chagoya, A. Felix, D. Le, and T. S. Rahman, *Catalyst for the Realization of Propylene from Syngas*. Pattern disclosure UCF Office of Technology Transfer, November, 2019.

External Funding: May 8, 2019 – May 7, 2020 (US \$)

Faculty Member	New Funding	Expenditures
Luca Argenti	\$133,748.52	\$87,568.32
Christopher Bennett	\$91,133.58	\$176,466.35
Julie Brisset	\$1,382.78	\$6,321.60
Daniel Britt	\$1,176,838.30	\$828,324.50
Humberto Campins	\$126,197.84	\$257,280.41
Kevin Cannon	\$43,128.85	\$37,396.97
Zenghu Chang	\$239,700.00	\$1,322,843.54
Bo Chen	\$459,145.00	\$148,997.45
Zhongzhou Chen	\$164,035.00	\$84,296.57
Leonid Chernyak	\$299,287.92	\$293,325.44
Jackie Chini	\$25,432.00	\$190,939.64
Michael Chini	\$349,312.00	\$381,444.23
Lee Chow	\$0	\$2,790.00
Joshua Colwell	\$248,458.16	\$246,008.92
James Cooney	\$0	\$7,883.15
Enrique del Barco	\$1,676,817.00	\$472,771.41
Kerri Donaldson Hanna	\$468,861.90	\$88,946.39
Joseph Donoghue	\$0	\$18,685.77
Adrienne Dove	\$482,244.48	\$156,449.75
Costas Efthimiou	\$0	\$17,214.38
Xiaofeng Feng	\$546,767.09	\$19,813.06
Yan Fernandez	\$3,494,505.33	\$3,021,438.97
Elena Flitsiyan	\$4,756.00	\$5,245.96
Joseph Harrington	\$258,977.00	\$236,513.92
Masahiro Ishigami	\$59,810.71	\$79,285.62
William Kaden	\$91,732.01	\$107,379.91
Abdelkader Kara	\$150,000.00	\$13,509.32
Richard Klemm	\$0	\$7,721.30
Viatcheslav Kokoouline	\$74,590.00	\$73,836.19
Eduardo Mucciolo	\$141,622.90	\$112,336.84
Madhab Neupane	\$433,935.00	\$323,652.71
Robert Peale	\$0	\$12,393.98
Talat Rahman	\$639,680.95	\$563,087.47
Suren Tatulian	\$62,049.03	\$85,997.98
Volodymyr Turkowski	\$43,000.00	\$82,491.50
Mihai Vaida	\$314,494.28	\$0

Evolution of Total External Funding in the Last Five Years (US \$)

	2015 - 2016	2016 - 2017	2017 - 2018	2018 - 2019	2019 - 2020
New Funding	\$5,742,883.19	\$5,694,593.51	\$6,109,978.39	\$11,684,755.88	\$14,765,343.43
Expenditures	\$6,764,007.75	\$5,447,730.42	\$5,619,615.09	\$9,334,764.23	\$11,662,616.19

5. Awards

Departmental

UCF Physics - PhysTEC 5+ Club (November 2019)

SPS - 2018-2019 Outstanding Chapter award (December 2019)

Faculty

Argenti, Luca – Reach for the Stars (February 2020)

Argenti, Luca – DOE Early Career Award (August 2019)

Britt, Daniel – Sir Arthur Clarke Award (November 2019)

Chang, Zenghu – COS 2020 Excellence in Research (January 2020)

Chang, Zenghu – Research Incentive Award (March, 2020)

Chen, Bo - Internal Instrumentations Award (February 2020)

Chen, Bo - Mid-Career Refresh Award (March 2020)

Chini, Jacquelyn – Reach for the Stars (February 2020)

Chini, Michael – Research Incentive Award (March 2020)

Chini, Michael – Teaching Incentive Prize (April 2020)

Feng, Xiaofeng – NSF CAREER Award (December 2019)

Flitsiyan, Elena – RIA (March 2020))

Kang, Ellen – NSF CAREER Award (May 2020)

Haripada, Saha – Professor Emeritus (March 2020)

Harrington, Joseph – Pegaus Professor (April 2020))

Ishigami, Masahiro - Mid-Career Refresh award (March 2020)

Neupane, Madhab - UCF Luminary Award (October 2019)

Peale, Robert - Internal Instrumentation award (February 2020)

Vaida, Miahi - NSF CAREER Award (December 2019)

Staff

Ramotar, Ray - 2018-2019 COS USPS Award (June 2019)

Students

Beetar, John Beetar - UCF Graduate Research Forum award (2019)

Berkley, Rainier – Physics GTA Award (2019)

Eckert, Stephanie - NASA Earth and Space Science and Technology Fello Award (June 2019)

Fernando, Kevin - SPS Leadership Scholarship (June 2019)

Forer, Joshua - Fulbright fellowship at the University of Bordeaux, in France (February 2020)

Himes, Michael - CGS Doctoral Research Support Award

Himes, Michael - Physics GTA Awards (2019)

Jardine, Keanna - NASA Earth and Space Science and Technology Fello Award (June 2019)

Jarmack, Stephanie – Order of Pegasus Award (February 2020)

Khatri, Gyan - CGS Doctoral Research Support Awards (November 2019)

Nesper, Jonathan – Summer Mentoring Fellowship (2019)

Rende, Eric – Physics GTA Awards (2019)

Safaei, Alireza – Outstanding Disseration Award (2020).

Sonali, Joshi - 1st prize poster competition at the 79th Physical Electronics Conference

Sajid, Muhamad - UCF's Three Minute Thesis (3MT) competition (2019)

Switzer, Eric - COS Honorable Mention for Excellence by a Graduate Teaching Assistant (January 2020)

Switzer, Eric – Outstanding Dissertation Award (March 2020)

Switzer, Eric –Excellence by a Graduate Teaching Assistant, (March 2020)

Zaman, Nusaiba - UCF's Three Minute Thesis (3MT) competition (November 2019)