UNIVERSITY OF CENTRAL FLORIDA

Department of Physics
Annual Productivity Report

Academic Year 2017 – 2018

June 29, 2018

1. Undergraduate Program

Undergraduate Student Credit Hours Generated in 2017-2018[1]

COURSES	TOTAL SCH
All	40,154

Summer 2017 Course Offering[2]

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Montgomery, Cooney	252
PHY 2048	General Physics using Calculus I	Stolbov, Flitsiyan, Costas	892
PHY 2049	General Physics using Calculus II	Chernyak, Flitsiyan, Costas	668
PHY 2053	College Physics I	Bhattacharya, Velissaris	1348
PHY 2054	College Physics II	B. Chen	388
PHY 3905	Independent Study	(several faculty)	3
PHY 4904	Hon Thesis	(several faculty)	2
PHY 4912	Directed Research	(several faculty)	23
PHY 4970	Hon Thesis	(several faculty)	3
PSC 1121	Physical Sciences	Brueckner	4
		TOTAL:	**3583**

Fall 2017 Course Offering[3]

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Britt, Brueckner, Montgomery, Fernandez Dove, Campins	2811
AST 2037	Life in the Universe	Montgomery	117
AST 3402	Galaxies and Cosmology	Cooney	96
AST 4762	Astronomical Data Analysis	Harrington	27
AST 4912	Directed Research	(several faculty)	117
PHY 1038	Energy, Climate Change and the Environment	Donoghue	150
PHY 1935	Freshman Seminar	(several faculty)	11
PHY 2020	Concepts of physics	J. Chini	294
PHY 2048	General Physics using Calculus I	M.Chini Neupane, Z.Chen, Cooney, Saha, Khondaker	3168
PHY 2049	General Physics using Calculus II	Dubey, Stolbov, Ishigami, Al-Rawi, Nakajima	2884
PHY 2053	College Physics I	Rahman, Tatulian, B.Chen, Kaden, Schulte	3028

[1] Up from 39,118 in 2016-2017.
[2] Up from 3445 in Summer 2016.
[3] Up from 17,733 in Fall 2016.

PHY 2054	College Physics II	Velissaris, Bhattacharya, Kara, Dove	3096
PHY 3101	General Physics using Calculus III	Dubey, Flitsiyan	573
PHY 3220	Mechanics I	Argenti	78
PHY 3323	Electricity and Magnetism I	Saha	150
PHY 3513	Thermal and Statistical Physics	Vaida	135
PHY 3722	Physics Lab - Electronics	Velissaris	54
PHY 3802	Intermediate Physics Lab	Bennett, Feng	81
PHY 3945	Physics Pedagogy Seminar	LaMee	11
PHY 4424	Optics	Kokoouline	24
PHY 4604	Wave Mechanics I	Klemm	102
PHY 4903	Honors Directed Reading	(several faculty)	6
PHY 4906	Honors Thesis	(several faculty)	1
PHY 4912	Directed Research	(several faculty)	16
PHY 4932	Mechanics II	Efthimiou	24
PHY4970	Honors Thesis	(several faculty)	6
PHY4971	Honors Thesis	(several faculty)	1
PHZ 3151	Computer Methods in Physics	Stolbov	36
PHZ 3466	Nanoscience III Virtual Lab	Schelling	15
PSC 1121	Physical Sciences	Brueckner, Efthimiou, Velissaris	1287
		TOTAL:	**18399**

Spring 2018 Course Offering[4]

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Bennett, Brueckner, Montgomery, Campins, Soileau	2949
AST3211	Stellar Astrophysics	Montgomery	51
AST4700	Exp. Methods in Astronomy	Fernandez	84
AST 4912	Directed Research	(several faculty)	7
PHY1038	Energy Climate Change Environ	Donoghue	165
PHY2048	General Physics using Calculus I	Neupane, Velissaris M.Chini, Cooney, Vaida, Chernyak	3156
PHY2049	General Physics using Calculus II	Efthimiou, Dubey, Al-Rawi, Kokoouline, Nakajima	2688
PHY 2053	College Physics I	Dubey, Khondaker, B. Chen, Colwell	3180
PHY 2054	College Physics II	Stolbov, Tatulian, Dove, Kara	3096
PHY 3101	General Physics using Calculus III	Schulte, Flitsiyan	501
PHY 3220	Mechanics I	Schelling	543
PHY 3752	Physics of Scientific Instruments	Velissaris	54
PHY 3802	Intermediate Physics Laboratory	Feng	33

[4] Up from 17,940 in Spring 2017.

PHY 3945	Physics Pedagogy Seminar	LaMee	5
PHY 4012	Teaching Introductory Physics	J. Chini, LaMee	27
PHY 4324	Electricity and Magnetism II	Saha	105
PHY 4445	Lasers	Chang	9
PHY 4605	Wave Mechanics II	Klemm	93
PHY 4803	Advanced Physics Laboratory	Chernyak, Ishigami	39
PHY 4903	Honors Directed Reading I	B. Chen, Elena Flitsiyan	6
PHY 4904	Honors Directed reading II	Robert Peale	1
PHY 4906	Directed Independent Study	Costas Efthimiou	3
PHY 4912	Directed Independent Research	(several faculty)	41
PHY 4970	Undergraduate Honors Thesis	Luca Argenti and Laurene Tetard	6
PHY 4971	Honors Undergraduate Thesis II	Luca Argenti	1
PHZ 3113	Intro. Theor. Methods in Physics	Klemm, Saha	174
PHZ 4404	Solid State Physics	Arkadiy Lyakh	21
PHZ4932	Intro to General Relativity	Cooney	21
PSC 1121	Physical Science	Brueckner, Velissaris	1113
		TOTAL:	**18172**

Physics B.S. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2013-2014	176	168
2014-2015	169	155
2015-2016	161	158
2016-2017	182	177
2017-2018	223	206

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

Academic Year	Summer	Fall	Spring	Total
2013-2014	2	7	19	28
2014-2015	3	5	18	26
2015-2016	2	5	15	22
2016-2017	1	4	18	23
2017-2018	3	5	17	25

Physics Undergraduate Minor Degrees Awarded in the Last Five Years

Academic Year	Summer	Fall	Spring	Total
2013-2014	-	3	4	7
2014-2015	-	2	5	7
2015-2016	1	2	3	6
2016-2017	-	4	9	13
2017-2018	2	5	2	9

Physics Honors in the Major Theses

2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
1	3	3	1	5

B.S. Degree Graduates in 2017-2018 (25 in total)

Summer 2017	Fall 2017	Spring 2018	
Amanda Bogeman	Andrew Davis	Adrian Arnette	Jeremy Coffman
Tyler Townsend	Arnold Banner	Ali Khater	Jesse Lu
	Christopher Bozak	Colin Lee	Logan Pruitt
	Conrad Troha Jr	Christopher Arose	Megan Cox
	Rikki Leyva	Dylan Rosenberg	Nicolas Navarro
		Dylan Weitzman	Reid Stack
		Derek Sheiman	Sarah Larson
		Jacqueline Jensen	Swapneal Jain
		Cody Jordan	

2. Graduate Program

Graduate Student Credit Hours Generated in 2017-2018[5]

COURSES	TOTAL SCH
All	1,481

Summer 2017 Course Offering[6]

Course Number	Course Title	Instructors	Total SCH
AST6908	Independent Study	(several faculty)	3
AST 6918	Directed Research	(several faculty)	45
AST 7980	Dissertation	(several faculty)	19
PHY 5817	Building Physics Apparatus	Ishigami	8
PHY 5917	Directed Research	(several faculty)	6
PHY 6908	Independent Study	(several faculty)	35
PHY 6918	Directed Research	(several faculty)	178
PHY 7980	Dissertation	(several faculty)	82
		TOTAL:	**376**

[5] In 2016-2017, the total SCH was 1614.
[6] Up from 361 in Summer 2016

Fall 2017 Course Offering[7]

Course Number	Course Title	Instructors	Total SCH
AST 5765C	Advanced Astronomical Data Analysis	Harrington	**18**
AST 6112	Origin and Evolution of Planetary Systems	Colwell	**30**
AST 6918	Directed Research	(several faculty)	**27**
AST 7980	Dissertation	(several faculty)	**18**
PHY 5346	Electrodynamics I	Peale	**33**
PHY 5606	Quantum Mechanics I	Schulte	**36**
PHY 6246	Classical Mechanics	Fernandez	**63**
PHY 6667	Quantum Field Theory I	Klemm	**18**
PHY6908	Independent Study	(several faculty)	**12**
PHY 6918	Directed Research	(several faculty)	**176**
PHY 6938	Special Topics: Electrodynamics III	Peale	**21**
PHY 7980	Dissertation	(several faculty)	**93**
PHZ 6426	Condensed Matter Physics I	Leuenberger	**30**
		TOTAL:	**575**

Spring 2018 Course Offering[8]

Course Number	Course Title	Instructors	Total SCH
AST 5165	Planetary Atmospheres	Harrington	**27**
AST 5263	Advanced Observational Astronomy	Fernandez	**18**
AST 6156	Planetary Seminar	Britt	**15**
AST 6918	Directed Research	(several faculty)	**21**
AST 7980	Dissertation	(several faculty)	**9**
PHY 5524	Statistical Physics	Bhattacharya	**45**
PHY 6347	Electrodynamics II	Peale	**30**
PHY 6624	Quantum Mechanics II	Schulte	**42**
PHY 6908	Independent Study	(several faculty)	**9**
PHY 6918	Directed Research	(several faculty)	**110**
PHY 6971	Directed Research	(several faculty)	**6**
PHY 7980	Dissertation	(several faculty)	**126**
PHZ 5156	Computational Physics	Stolbov	**36**
PHZ 5625	General Relativity	Efthimiou	**21**
PHZ 6428	Condensed Matter Physics II	Leuenberger	**15**
		TOTAL:	**530**

[7] Down from 658 in Fall 2016.
[8] Down from 595 in Spring 2017.

Physics M.S. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2013-2014	3	2
2014-2015	1	1
2015-2016	5	5
2016-2017	5	5
2017-2018	6	6

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

Academic Year	Summer	Fall	Spring	Total
2013-2014	3	4	4	11
2014-2015	4	-	-	4
2015-2016	2	6	4	12
2016-2017	4	2	4	10
2017-2018	4	3	7	14

M.S. Degree Graduates 2017-2018 (14 in total)

Summer 2017	Fall 2017	Spring 2018
Molla Manjurul Islam	John Beetar	Constance Doty
Firoza Kabir	Coleman Cariker	Westley James
Cameron Nickle	Fernand Torres-Davilia	Sean Buczek
Nusaiba Zaman		Alireza Safaei
		Charuni Dissanayake
		Gyan Khatri
		Andre Childs

Physics Ph.D. Applications in the Last Five Years

Starting Term	Applied	Accepted	Enrolled
Fall 2013	122	33	10
Fall 2014	118	40	21
Fall 2015	141	47	19
Fall 2016	149	26	23
Fall 2017	131	36	16
Fall 2018	96	33	(11 expected)

Physics Ph.D. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2013-2014	84	84
2014-2015	94	88
2015-2016	93	82
2016-2017	92	88
2017-2018	85	86

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

Academic Year	Summer	Fall	Spring	Total
2013-2014	5	2	2	9
2014-2015	5	7	9	21
2015-2016	4	9	4	17
2016-2017	4	3	7	14
2017-2018	5	3	5	13

Physics Ph.D. Graduates 2017-2018 (13 in total)

Summer 2017

- **Marta Anguera Antonana**, Spin and Charge Transport in Graphene Based Devices.
  (Adviser: Enrique Del Barco, Ph.D.)

- **Zoe Landsman**, The Physical Properties and Composition of Main-Belt Asteroids from Infrared Spectroscopy"
  (Adviser: Humberto Campins, PH.D.)

- **Sudeep Pandey**, Quantification of non-stoichiometry and impurities in transparent YAG ceramics by laser-induced breakdown spectroscopy (LIBS).
  (Adviser: Romain Gaume, PH.D.)

- **Xin Qiao**, Spherical self-assembly of rous sarcoma virus CA, probed by solid-state NMR and the structure of prostate acidic phosphatase and reflectin protein.
  (Advisor: Bo Chen, Ph.D)

- **Takat Rawal**, Predictive Modeling of Functional Materials for Catalytic and Sensor Applications.
  (Adviser: Talat Rahman, Ph.D).

Fall 2017

- **Hussain Abouelkhair**, Growth and doping of MoS2 thin films for electronic and optoelectronic applications.
  (Adviser: Robert Peale, Ph.D.)

- **Sabine Pelton***,* Solving Constraint Satisfaction Problems with Matrix Product States.
  (Adviser: Eduardo Mucciolo, Ph.D.)

- **Abrar Quadery**, Atomic-scale simulation of physical and chemical processes during space weathering and planet formation
  (Adviser: Patrick Schelling. Ph.D.)

Spring 2018

- **Shree Ram Acharya,** *From Excited Charge Dynamics to Cluster Diffusion: Development and Application of Techniques beyond DFT and KMC.*
  (Advisor: Talat Rahman, Ph.D.)

- **Daniel Franklin,** *Dynamically Tunable Plasmonic Structural Color.*
  (Advisor: Debashis Chanda, Ph.D.)

- **Richard Jerousek,** *Determining the Small-scale Structure and Particle Properties of Saturn's Rings from Stellar and Radio Occultations.*
  (Advisor: Joshua Colwell, Ph.D.)

- **Mahtab Khan,** *Electronic, optical and magnetic properties of Graphene and single-layer Transition metal dichalcogenides in the presence of defects.*
  (Advisor: Michael Leuenberger, Ph.D.)

- **Jenna Jones,** *Investigating Compositional Variations of S-Complex Near-Earth Asteroids: (1627) Ivar.*
  (Advisor: Yanga Fernandez, Ph.D.)

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

Academic Year	Summer	Fall	Spring
2013-2014	13	33.5	34.5
2014-2015	17.5	36	35
2015-2016	19	37	35
2016-2017	16	40.5	42
2017-2018	16.5	39	39

GRA Contracts Processed (in units of 0.50 FTE)

Academic Year	Summer	Fall	Spring
2012-2013		26.5	23
2013-2014	35	26	25.5
2014-2015	33.5	28.5	25
2015-2016	33.5	36	31.5
2016-2017	39	44	36
2017-2018	40.5	37	35

3. Department Personnel (2017 – 2018)

In-Unit Physics Faculty (49)

Ahlam Al-Rawi *Lecturer* **Luca Argenti** *Assistant Professor* **Christopher Bennett** *Assistant Professor* **Aniket Bhattacharya** *Associate Professor* **Daniel Britt** *Pegasus Professor* **Thomas Brueckner** *Lecturer* **Humberto Campins** *Pegasus Professor* **Zenghu Chang** *University Trustee Chair, Pegasus, and Distinguished Professor* **Bo Chen** *Assistant Professor* **Zhongzhou Chen** *Assistant Professor* **Leonid Chernyak** *Professor* **Jacquelyn Chini** *Assistant Professor* **Michael Chini** *Assistant Professor* **Lee Chow** *Professor* **Joshua Colwell** *Professor and Associate Chair* **James Cooney** *Associate Lecturer* **Enrique del Barco** *Professor and Associate Chair*	**Joseph Donoghue** *Associate Professor* **Adrienne Dove** *Assistant Professor* **Archana Dubey** *Associate Lecturer* **Costas Efthimiou** *Associate Professor* **Xiaofeng Feng** *Assistant Professor* **Yan Fernandez** *Associate Professor* **Elena Flitsiyan** *Associate Lecturer and Undergraduate Program Director* **Joseph Harrington** *Professor* **Masahiro Ishigami** *Associate Professor* **Michael Johnson** *Professor and College Dean* **William Kaden** *Assistant Professor* **Abdelkader Kara** *Professor and Graduate Program Director* **Richard Klemm** *Professor* **Viatcheslav Kokoouline** *Professor* **Adam LaMee** *Instruction Specialist* **Duy Le** *Research Scientist*	**Weili Luo** *Professor* **Michele Montgomery** *Lecturer* **Eduardo Mucciolo** *Professor and Department Chair* **Yasuyuki Nakajima** *Assistant Professor* **Madhab Neupane** *Assistant Professor* **Robert Peale** *Professor* **Talat Rahman** *Pegasus and Distinguished Professor* **Hari Saha** *Professor* **Patrick Schelling** *Associate Professor* **Alfons Schulte** *Professor* **Sergey Stolbov** *Associate Professor* **Suren Tatulian** *Professor* **Volodymyr Turkowski** *Research Assistant Professor* **Mihai Vaida** *Assistant Professor* **Christos Velissaris** *Associate Lecturer* **Yi Wu** *Assistant Scientist*

Affiliated Faculty (16)

Alexander Balaeff *Nanoscience Technology Center*	**Martin Richardson** *College of Optics*	**Laurene Tetard** *Nanoscience Technology Center*
Beatriz Roldan Cuenya *Ruhr University, Germany*	***Aristide Dogariu*** *College of Optics*	**Konstantin Vodopyanov** *College of Optics*
Saiful Khondaker *Nanoscience Technology Center*	**Tania Roy** *Nanoscience Technology Center*	**Boris Zeldovich** *College of Optics*
Michael Leuenberger *Nanoscience Technology Center*	**Bhimsen Shivamoggi** *Mathematics*	**Sampyo Hong** *Brewton-Parker College, GA*
Arkadiy Lyakh *Nanoscience Technology Center*	**M. J. Soileau** *College of Optics*	**Peter Delfyett** *College of Optics*
Zeidan Omar *Orlando Health*		

Post-Doctoral Associates (11)

Krishna Murari *(Chang group)*	**Jun Wang** *(Chang group)*	**Nicolas Douguet** *(Argenti Group)*
Jialin Li *(Chang group)*	**Seunghwoi Han** *(Chang group)*	**Yanchun Yin** *(Chang group)*
Xiaoming Ren *(Chang group)*	**Mathew Weidman** *(Chang group)*	**Erin Scanlon** *(J. Chini Group)*
Kevin Cannon *(Britt Group)*	***Yangyang Liu*** *(M. Chini and Neupane Group)*	

Staff Members (11)

Nathan Aultman *Cleanroom Technician*	**Shelley Glaspie** *Undergraduate Program Assistant*
Amanda Bogeman *Research Technician*	**Ray Ramotar** *Engineer; Laboratory Manager*
Jessica Brooks *Senior Accountant*	**Elizabeth Rivera** *Administrative Assistant and HR Liaison*
Phillip Chan *Senior Teaching Laboratory Specialist*	**Esperanza Soto Arcino** *Graduate Program Assistant*

Monika Crittenden *Coordinator Research Programs & Services*	**Robert Wong** *Machinist*
Nikitta Campbell *Office Assistant*	

Graduate Students (94 active in Spring 2018)

Abedin, Faisal	Dhakal, Gyanendra	Kandel, Nabin	Reyes, Justin
Acharya, Shree Ram	Dhar, Bijoya	Khan, Mahtab	Richardson, William
Alam, Didarul	Dhara, Sayandip	Khaniya, Asim	Rivera, Isabel
Arredondo, Anicia	Dissanayake, Charuni	Khatri, Gyan	Safaei, Alireza
Asilador, Anthony	Doty, Constance	Kim, Sunghyun	Saghaye-Polkoo, Sajad
Barrett, Chance	Eckert, Stephanie	Larson, Jennifer	Sajid, Muhammad
Beetar, John	Evans, Rachel	Lebleu, Amy	Schambeau, Charles
Berkley, Rainier	Franklin, Daniel	Lee, Jonathan	Shabbir, Muhammad
Blue, Brandon	Gholam Shima	Liu, Zichen	Shinaberry, Gregory
Bonior, Daniel	Greene, Johnnie	Lodge, Michael	Shouk, Nahi
Bonnough, Sheila	Guo, Tianyi	Malfavon, Andrew	Shouk, Ruqayyah
Boykin, Tommy	Himes, Michael	Malone, Walter	Siddiquee, Hasan
Buczek, Sean	Hinkle, Mary	McIntyre, Kathleen	Sims, Christopher
Calhoun, Seth	Hooshmand Zahra	Mehmood, Saad	Thames, Tyrone
Campbell, Tyler	Hosen, Md Mofazzel	Munir, Riffat	Thompson, Jesse
Cariker, Coleman	Islam, Molla	Nickle, Cameron	Torres Davila, Fernand
Cebulka, Rebecca	James, Westley	Otrooshi, Negar	Tucker, William
Challener, Ryan	Jardine, Keanna	Pathan, Md Afjal Khan	Ud Din, Naseem
Chambers, Wesley	Jarmak, Stephanie	Phillips, James	Ur Rehman, Mahboob
Childs, Andre	Jerousek, Richard	Pohl, Leos	Vaidya, Priyanka
Conley, Byron	Jiang, Tao	Regmi, Sabin	Wilcox, Matthew
Davila, George	Jones, Jenna	Reinhart, Daniel	Withanage, Sajeevi
Davis, Leslie	Kabir, Firoza	Reyes, Danielle	Yuen, Chi Hong
		Zamarripa, Brian	Zaman, Nusaiba

Visitors (24)

Joseba Alberdi, Donostia International Physics Center (October - December 2017). Host: T. Rahman.

Klaus Bartschart, Drake University (March 2018). Host: L. Argenti.

Andre de Souza, Universidade Federal de Sergipe, Brazil (July 2017 – June 2018). Host: E. Mucciolo.

Stefan Donsa, Vienna University of Technology (March 2018 - present). Host: L. Argenti.

Romain Geneaux, University of California at Berkeley (September 2017). Host: Z. Chang.

Herman Gharibnejad, NIST (December 2017). host: L. Argenti.

Chia-Hsin Ko, Technical University of Munich, (January – February 2018). Host: A. Schulte,

Barry Schneider, NIST (December 2017). Host: L. Argenti.

Aldo Ugolotti, Università degli Studi di Milano-Bicocca, Italy (September 2017). Host: A. Kara.

Andrei Vedernikov, Universite Libre de Bruxelles, Belgium (Octotber – November 2017)

Yishan Wang, Institute of Optics and Precision Mechanics, China (September – October 2017). Host: Z. Chang.

Kun Zhao, Institute of Physics, China (October 2017). Host: Z. Chang.

Jonathan Kollmer, North Carolina State University (January 2018). Host: J. Colwell.

Ayouz Mehdi, Centrale Supelec, Paris, France (January 2018). Host: V. Kokoouline.

John Miao, University of California at Los Angeles (November 2017). Host: Z. Chang.

Bart-Jan Niebuur, Technical University of Munich, Germany (January 2018). Host: A. Schulte.

Jeppe Olsen, Aarhus University, Denmark (December 2017). Host: L. Argenti.

Christine Papadakis, Technical University of Munich, Germany (January 2018). Host: A. Schulte.

Bruno Schmidt, INRS Canada (April 2018). Host: Z. Chang

Anthony Thomas, Aix Marseille University, France (November 2017). Host: A. Kara.

Yoshihide Watanabe, Toyota Central R&D Labs (November 2017). Host: W. Kaden.

Jonathan White, Friedrich Schiller University, Germany (October 2017 – present). Host: Z. Chang.

Peng Xu, Institute of Optics and Precision Mechanics, China (September 2017 – present). Host: Z. Chang.

Aiying Zhao, University of Science and Technology, China (December 2017 – present). Host: R. Klemm.

4. Faculty Productivity

In-Unit Physics Faculty Scholarly Work in 2017-2018

Faculty Member	Indexed, peer-reviewed articles	Conference proceedings and Abstracts	Book chapters	Books	Invited presentations	Patents and disclosures
Al-Rawi	-	-	-	-	-	-
Argenti	7	2	-	-	4	-
Bennet	-	-	-	-	3	-
Bhattacharya	2	1	-	-	-	-
Britt	2	38	-	-	17	-
Brueckner	-	-	-	-	-	-
Campins	4	2	-	-	5	-
Chang	6	2	-	-	21	1
B. Chen	1	-	-	-	4	-
Z. Chen	-	6	-	-	3	-
Chernyak	4	3	-	-	2	1
J. Chini	-	3	-	-	4	-
M. Chini	5	11	-	-	3	-
Chow	6	2	-	-	-	-
Colwell	4	13	1	-	1	-
Cooney	1	-	-	-	-	-
Del Barco	5	4	-	-	2	-
Donoghue	2	2	-	-	-	-
Dove	4	7	-	-	2	-
Dubey	-	-	-	-	-	-
Efthimiou	1	-	-	-	-	-
Feng	2	2	-	-	4	-
Fernandez	10	12	-	-	3	-
Flitsiyan	6	6	-	-	5	-
Harrington	-	11	-	-	-	-
Ishigami	3	6	-	-	3	-
Kaden	2	1	-	-	2	-
Kara	6	7	-	-	2	-
Klemm	4	2	-	-	4	1
Kokoouline	3	5	-	-	2	-

Faculty Member	Indexed, peer-reviewed articles	Conference proceedings and Abstracts	Book chapters	Books	Invited presentations	Patents and disclosures
LaMee	-	-	-	-	-	-
Le	6	3	-	-	1	-
Luo						
Montgomery	2	1	-	-	1	-
Mucciolo	5	-	-	-	1	-
Nakajima	1	2	-	-	1	-
Neupane	4	9	-	-	6	-
Peale	4	5	-	-	2	2
Rahman	12	15	-	-	16	-
Saha	1	1	-	-	-	-
Schelling	2	1	-	-	-	-
Schulte	3	6	-	-	1	-
Stolbov	1	-	1	-	-	-
Tatulian	1	2	2	-	1	-
Turkowski	4	1	-	-	2	-
Vaida	2	7	-	-	1	-
Velissaris	-	-	-	-	-	-

Department Summary

Peer-Reviewed Journals	Conference Proceedings and Abstracts	Book Chapters	Other Publications	Invited Presentations	Patents Received	Disclosures and Patent Applications
112	119	4	10	116	3	3

Articles in Peer-Reviewed Journals by In-Unit Physics Faculty (112)

1. C. L. M. Petersson, L. Argenti, F. Martín, "*Attosecond transient absorption spectroscopy of helium above the N=2 ionization threshold*", Phys. Rev. A **96**, 013403 (2017).

2. C. Marante, M. Klinker, T. Kjellsson, E. Lindroth, J. González-Vázquez, L. Argenti, F. Martín "*Photoionization using the xchem approach: Total and partial cross sections of Ne and resonance parameters above the 2s22p5 threshold*", Phys. Rev. A **96**, 022507 (2017).

3. M. Klinker, C. Marante, L. Argenti, J. González-Vázquez, F. Martín, "*Electron Correlation in the Ionization Continuum of Molecules: Photoionization of N2 in the Vicinity of the Hopfield Series of Autoionizing States*", J. Phys. Chem. Lett. **9**, 756 (2018).

4. C. Cirelli, C. Marante, S. Heuser, C. Petersson, Á. Jiménez Galán, L. Argenti, S. Zhong, D. Busto, M. Isinger, S. Nandi, S. Maclot, L. Rading, P. Johnsson, M. Gisselbrecht, M. Lucchini, L. Gallmann, J. M. Dahlström, E. Lindroth, A. L'Huillier, F. Martín, U. Keller, "*Anisotropic photoemission time delays close to a Fano resonance*", Nature Commun. **9**, 955 (2018).

5. M. Waitz, R. Y. Bello, D. Metz, J. Lower, F. Trinter, C. Schober, M. Keiling, U. Lenz, M. Pitzer, K. Mertens, M. Martins, J. Viefhaus, S. Klumpp, T. Weber, L. Ph. H. Schmidt, J. B. Williams, M. S. Schöffler, V. V. Serov, A. S. Kheifets, L. Argenti, A. Palacios, F. Martín, T. Jahnke, R. Dörner, "*Imaging the square of the correlated two-electron wave function of a hydrogen molecule*", Nature Commun. **8**, 2266 (2017).

6. D. Busto, L. Barreau, M. Isinger, M. Turconi, C. Alexandridi, A. Harth, S. Zhong, R. J. Squibb, D. Kroon, S. Plogmaker, M. Miranda, Á. Jiménez-Galán, L. Argenti, C. L. Arnold, R. Feifel, F. Martin, M. Gisselbrecht, A. L'Huillier, P. Salières, "*Time–frequency representation of autoionization dynamics in helium*", J. Phys. B: At. Mol. Opt. Phys. **51**, 044002 (2018).

7. A. Chew, N. Douguet, C. Cariker, J. Li, E. Lindroth, X. Ren, Y. Yin, L. Argenti, W. T. Hill III, Z. Chang, "*Attosecond transient absorption spectrum of argon at the L 2, 3 edge*", Phys. Rev. A **97**, 031407 (2018).

8. N. Castaneda, T. Zheng, H. Rivera-Jacquez, H.-J. Lee, J. Hyun, A. Balaeff, Q. Huo, H. Kang, "*Mechanics and Dynamics of Cation-Induced Actin Bundles*", J. Phys. Chem. B **122**, 3826 (2018).

9. R. Sha, L. Xiang, C. Liu, A. Balaeff, Y. Zhang, P. Zhang, Y. Li, D. N. Beratan, N. Tao, N. Seeman, "*Self-assembling Charge Splitters and Charge Transport Junctions Based on Guanine Quadruplexes*", Nature Nanotech. **1**3, 316 (2018).

10. S. Bernier, A. Huan, W. Reisner, A. Bhattacharya, "*Evolution of Nested Folding States in Compression of a Strongly Confined Semiflexible Chain*", Accepted for publication in Macromolecules (Web Publication date May 17, 2018) DOI: 10.1021/acs.macromol.7b02748

11. R. Adhikari, A. Bhattacharya, "*Effect of solvent viscosity on driven translocation of a semi-flexible chain though a nano-pore*", Europhys. Lett. **121**, 68006 (2018).

12. L. Pohl, D. T. Britt, "*The radiation shielding potential of CI and CM chondrites*", Advances in Space Research **59**, 1473 (2017).

13. M. Fries, P. Abell, J. Brisset, D. Britt, J. Colwell, A. Dove, D. Durda, L. Graham, C. Hartzell, K. Hrovat, K. John, "*The Strata-1 experiment on small body regolith segregation*", Acta Astronautica **142**, 87 (2018).

14. M. N. De Prá, N. Pinilla-Alonso, J. M. Carvano, J. Licandro, H. Campins, T. Mothé-Diniz, J. De León, V. Alí-Lagoa, "*PRIMASS visits Hilda and Cybele groups*", Icarus **311**, 35 (2018).

15. Z. A. Landsman, J. P. Emery, H. Campins, J. Hanus, L. F. Lim, D. P. Cruikshank, "*Asteroid (16) Psyche: Evidence for a silicate regolith from spitzer space telescope spectroscopy*", Icarus **304**, 58 (2018).

16. M. Devogèle, P. Tanga, A. Cellino, Ph. Bendjoya, J.-P. Rivet, J. Surdej, D. Vernet, J. M. Sunshine, S. J. Bus, L. Abe, S. Bagnulo, G. Borisov, H. Campins, B. Carry, J. Licandro, W. McLean, N. Pinilla-Alonso, "*New polarimetric and spectroscopic evidence of anomalous enrichment in spinel-bearing calcium-aluminium-rich inclusions among L-type asteroids*", Icarus **304**, 31 (2018).

17. D. Morate, J. de León, M. De Prá, J. Licandro, A. Cabrera-Lavers, H. Campins, N. Pinilla-Alonso, "*Visible spectroscopy of the Sulamitis and Clarissa primitive families: a possible link to Erigone and Polana*", Astronomy & Astrophysics, **610**, A25 (2018).

18. X. Ren, J. Li, Y. Yin, K. Zhao, A. Chew, Y. Wang, S. Hu, Y. Cheng, E. Cunningham, Y. Wu, M. Chini, Z. Chang, "*Attosecond light sources in the water window*", J. Optics **20**, 023001 (2018).

19. Y. Yin, X. Ren, Y. Wang, F. Zhuang, Jie Li, Z. Chang, "*Generation of high-energy narrowband 2.05 μm pulses for seeding a Ho:YLF laser*". Photonics Research **6**, 1 (2018).

20. Y. S. You, Y. Yin, Y. Wu, A. Chew, X. Ren, F. Zhuang, S. Gholam-Mirzaei, M. Chini, Z. Chang, S. Ghimire, "*High-harmonic generation in amorphous solids*", Nature Commun. **8**, 724 (2017).

21. Y. Yin, X. Ren, A. Chew, J. Li, Y. Wang, F. Zhuang, Y. Wu, Z. Chang, "*Generation of octave-spanning mid-infrared pulses from cascaded second-order nonlinear processes in a single crystal*", Scientific Reports **7**, 11097 (2017).

22. J. Li, X. Ren, Y. Yin, K. Zhao, A. Chew, Y. Cheng, E. Cunningham, Y. Wang, S. Hu, Y. Wu, M. Chini, Z. Chang, "*53-Attosecond X-ray Pulses Reach the Carbon K-edge*", Nature Commun. **8**, 186 (2017).

23. Y. Liao, C. Li, X. Lou, X. Hu, Y. Ning, F. Yuan, B. Chen, M. Shen, B. Hu. "*Carbon-coated Li3V2(PO4)3 derived from metal-organic framework as cathode for lithium-ion batteries with high stability*", Electrochimica Act. **271**, 608 (2018).

24. J. Lee, E. Flitsiyan, L. Chernyak, J. C. Yang, F. Ren, S. Pearton, B. Meyler, Y. J. Salzman, "*Effect of 1.5 MeV electron irradiation on beta-Ga2O3 carrier lifetime and diffusion length*", Appl. Phys. Lett. **112**, 082104 (2018).

25. J. C. Yang, Z. T. Chen, F. Ren, S. J. Pearton, G. Yang, J. Kim, J. Lee, E. Flitsiyan, L. Chernyak, A. Kuramata, "*10 MeV proton damage in beta-Ga2O3 Schottky rectifiers*", J. Vacuum. Sci. Technol. **36,** 011206 (2018).

26. J. C. Yang, F. Ren, R. Khanna, K. Bevlin, D. Geerpuram, L. C. Tung, J. Y. Lin, H. X. Jiang, J. Lee, E. Flitsiyan, L. Chernyak, S. J. Pearton, A. Kuramata (2017) "*Annealing of dry etch damage in metallized and bare (-201) Ga2O3*", J. Vacuum. Sci. Technol. **35**, 051201 (2017).

27. J. Lee, E. Flitsiyan, L. Chernyak, J. Salzman, B. Meyler, "*Effects of Gamma Irradiation on AlGaN-Based High Electron Mobility Transistors*", ECS J. Solid State Sci. Tech. **6**, S3063 (2017).

28. S. Gholam-Mirzaei, J. Beetar, A. Chacón, M. Chini, "*High Harmonic Generation in ZnO Driven by Self-compressed Mid-infrared Pulses*", J. Opt. Soc. Am. B **35**, A27 (2018).

29. J. Beetar, S. Gholam-Mirzaei, M. Chini "*Spectral Broadening and Pulse Compression of a High Peak and Average Power Laser in Multi-plate Medium*", Appl. Phys. Lett. **112**, 051102 (2018).

30. T. Luo, J. Perrin Toinin, M. Descoins, K. Hoummada, M. Bertoglio, L. Chow, D. Narducci, A. Portavoce, "*PdGe contact fabrication on Se-doped Ge*", Scripta Materialia **139**, 104 (2017).

31. J. Osvald, G. Vanko, L. Chow, N. C. Chen, L. B. Chang, "*Transition voltage of AlGaN/GaN heterostructure MSM varactor with two-dimensional electron gas*", Microelectronics Reliability **78**, 243 (2017).

32. O. Lupan, V. Postica, R. Adelung, F. Labat, I. Ciofini, U. Schurmann, L. Kienle, L. Chow, B. Viana, T. Pauporte, "*Functionalized Pd/ZnO Nanowire for Nanodevices*", Physica Status Solidi RRL **12**, 1700321 (2018).

33. V. Postica, O. Lupan, N. Ababii, M. Hoppe, R. Adelung, L. Chow, V. Sontea, P. Aschehoug, B. Viana, Th. Pauporté, "*Detectors based on Pd-doped and PdO-functionalized ZnO nanostructures*", Proceedings of the SPIE **10533**, 2T (2018).

34. Y-C Li, Y-H Chang, P. Singh, L.-B. Chang, D.-H. Yeh, T.-Y. Chao, S.-Y. Jian, Y.-C. Li, C.-M. Tan, C.-S. Lai, L. Chow, S.-P. Ying, "*RGB-Stack Light Emitting Diode Modules with Transparent Glass Circuit Board and Oil Encapsulation*", Materials **11**, 65 (2018).

35. Th. Pauporté, O. Lupan, V. Postica, M. Hoppe, L. Chow, R. Adelung. "*Al-doped ZnO Nanowires by Electrochemical Deposition*", Phys. Status Solidi A, 170824 (2018).

36. T. M. Becker, J. E. Colwell, L. W. Esposito, N. O. Attree, C. D. Murray, "*Cassini UVIS Solar Occultations by Saturn's F Ring and the Detection of Collision-Produced Micron-Sized Dust*", Icarus **306**, 171 (2018).

37. J. Brisset, J. Colwell, A. Dove, D. Maukonen, "*The NanoRocks Experiment: Studying Planet Formation on the International Space Station*", Rev. Sci. Inst. **88**, 074502 (2018).

38. J. E. Colwell, L. W. Esposito, J. H. Cooney, "*Particle Sizes in Saturn's Rings from UVIS Stellar Occultations 1. Variations with Ring Region*", Icarus **300**, 150 (2018).

39. R. Cebulka, E. del Barco**, "***Assessment of the Effect of Service-Learning in Nanoscience on Student's Depth of Learning and Critical Thinking*", PRISM A journal of Community Engagement **6**, 57 (2018).

40. M. Fix, J. H. Atkinson, P.C. Canfield, E. del Barco, A. Jesche "*Extreme Field Sensitivity of Magnetic Tunneling in Fe-Doped Li3N*", Phys. Rev. Lett. **120**, 147202 (2018).

41. L. Yuan, L. Wang, A. R. Garrigues, L. Jiang, H. V. Annadata, M. Anguera Antonana, E. del Barco, C. A. Nijhuis, "*Transition from Direct to Inverted Charge Transport Marcus Regions in Molecular Junctions via Molecular Orbital Gating*", *Nature Nanotech*. **13**, 322 (2018).

42. M. A. Sierra, D. Sánchez, A. R. Garrigues, E. del Barco, L. Wang, C. A. Nijhuis, "*How to distinguish between interacting and noninteracting molecules in tunnel junctions*" *Nanoscale* **10**, 3904 (2018).

43. X. Chen, M. Roemer, L. Yuan, W. Du, D. Thompson, E. del Barco, C. A. Nijhuis, "*Large-Area Molecular Tunnel Junctions with Giant Rectification of Electrical Current*", Nature Nanotech. **12**, 797 (2017).

44. R. Sankar, J. F. Donoghue, S.A. Kish, "*Spatio-temporal analysis of decadal-scale patterns in barrier island response to storms: Perdido Key, Florida*", *Physical Geography* **39**, 166 (2017).

45. M. J. Osland, K. T. Griffith, J. C. Larriviere, L. C. Feher, D. R. Cahoon, N. M. Enwright, D. A. Oster, J. M. Tirpak, M. S. Woodrey, R. Collini, J. J. Baustian, J. L. Breithaupt, J. A. Cherry, J. R. Conrad, N. Cormier, C. A. Coronado-Molina, J. F. Donoghue, S. A. Graham, J. W. Harper, M. W. Hester, R. J. Howard, K. W. Krauss, D. E. Kroes, R. R. Lane, K. L. McKee, I. A. Mendelsshon, B. A. Middleton, J. A. Moon, S. C. Piazza, N. M. Rankin, F. H. Sklar, G. D. Steyer, K. M. Swanson, C. M. Swarzenski, W. C. Vervaeke, J. M. Willis, K. V. Wilson, "*Assessing coastal wetland vulnerability to sea-level rise along the northern Gulf of Mexico coast: gaps and opportunities for developing a coordinated regional sampling network*", *PLOS ONE* **12** e0183431 (2017).

46. A. Dove, M. Horanyi, X. Wang, S. Robertson, "*Laboratory investigation of the effect of surface roughness on photoemission from surfaces in space*", Planetary and Space Science **156**, 92 (2018).

47. C. Efthimiou, "*Investigation of Skyscraper's Feat*", Physics Education **53**, 045010 (2018).

48. B. A. J. Lechner, X. Feng, P. J. Feibelman, J. I. Cerda, M. Salmeron, "*Scanning tunneling microscopy study of the structure and interaction between carbon monoxide and hydrogen on the Ru(0001) surface*", J. Phys. Chem. B **122**, 649 (2018).

49. J. Wang, L. Yu, L. Hu, G. Chen, H. Xin, X. Feng, "*Ambient ammonia synthesis via palladium-catalyzed electrohydrogenation of dinitrogen at low overpotential*", Nature Commun. **9**, 1795 (2018).

50. J. D. Rosser, J. M. Bauer, A. K. Mainzer, E. Kramer, J. R. Masiero, C. R. Nugent, S. Sonnett; Y. R. Fernández, K. Ruecker, P. Krings, E. L. Wright, "*Behavioral Characteristics and CO+CO2 Production Rates of Halley-type Comets Observed by NEOWISE*", Astronomical J. **155**, 164 (2018).

51. E. S. Howell, C. Magri, R. J. Vervack, M. C. Nolan, P. A. Taylor, Y. R. Fernández, M. D. Hicks, J. M. Somers, K. J. Lawrence, A. S. Rivkin, S. E. Marshall, J. L. Crowell, "*SHERMAN - A shape-based thermophysical model II. Application to 8567 (1996 HW1)*", Icarus **303**, 220 (2018).

52. C. Magri, E. S. Howell, R. J. Vervack, M. C. Nolan, Y. R. Fernández, S. E. Marshall, J. L. Crowell, "*SHERMAN, a shape-based thermophysical model. I. Model description and validation*", Icarus **303**, 203 (2018).

53. B. T. Bolin, H. A. Weaver, Y. R. Fernandez, C. M. Lisse, D. Huppenkothen, R. Lynne Jones, M. Jurić, J. Moeyens, C. A. Schambeau, C. T. Slater, Ž. Ivezić, A. J. Connolly, "*APO Time-resolved Color Photometry of Highly Elongated Interstellar Object 1I/'Oumuamua*", Astrophys. J. **852**, L2 (2018).

54. C. M. Lisse, M. L. Sitko, M. Marengo, R. J. Vervack, Jr., Y. R. Fernandez, T. Mittal, C. H. Chen, "*Infrared Spectroscopy of HR 4796A's Bright Outer Cometary Ring + Tenuous Inner Hot Dust Cloud*", Astronomical J. **154**, 182 (2017).

55. R. Kokotanekova, C. Snodgrass, P. Lacerda, S. F. Green, S. C. Lowry, Y. R. Fernández, C. Tubiana, A. Fitzsimmons, H. H. Hsieh "*Rotation of cometary nuclei: new light curves and an update of the ensemble properties of Jupiter-family comets*", Monthly Notices Roy. Astron. Soc. **471**, 2974 (2017).

56. P. D. S. Birch, Y. Tang, A. G. Hayes, R. L. Kirk, D. Bodewits, H. Campins, Y. Fernandez, R. de Freitas Bar, N. W. Kutsop, H. Sierks, J. M. Soderblom, S. W. Squyres, J.-B. Vincent, "*Geomorphology of comet 67P/Churyumov-Gerasimenko*", Monthly Notices Roy. Astron. Soc. **471**, 2974 (2017).

57. J. M. Bauer, T. Grav, Y. R. Fernández, A. K. Mainzer, E. A. Kramer, J. R. Masiero, T. Spahr, C. R. Nugent, R. A. Stevenson, K. J. Meech, R. M. Cutri, C. M. Lisse, R. Walker; J. W. Dailey, J. Rosser, Ph. Krings, K. Ruecker, E. L. Wright, "*Debiasing the NEOWISE Cryogenic Mission Comet Populations*", Astronomical J. **154**, 53 (2017).

58. S. E. Marshall, E. S. Howell, C. Magri, R. J. Vervack, D. B. Campbell, Y. R. Fernández, M. C. Nolan, J. L. Crowell, M. D. Hicks, K. J. Lawrence, P. A. Taylor, "*Thermal properties and an improved shape model for near-Earth asteroid (162421) 2000 ET70*", Icarus **292**, 22 (2017).

59. J. L. Crowell, E. S. Howell, C. Magri, M. C. Nolan, Y. R. Fernández, J. E. Richardson, B. D. Warner, S. E. Marshall, A. Springmann, R. J. Vervack, "*Radar and Lightcurve Shape Model of Near-Earth Asteroid (1627) Ivar*", Icarus **291**, 254 (2017).

60. M. S. Lodge, G. Chang, C.-Y. Huang, B. Singh, J. Hellerstedt, M. T. Edmonds, D. Kaczorowski, M. M. Hosen, M. Neupane, H. L., M. S. Fuhrer, B. Weber, *M. Ishigami*, "*Observation of Effective Pseudospin Scattering in ZrSiS*", Nano Letters **17**, 7213 (2017).

61. N. Kang, C. W. Smith, M. Ishigami, S. Khondaker, "*Comparative study of organic transistors with different graphene electrodes fabricated using a simple pattering approach*", Appl. Phys. Lett. **111**, 233303 (2017).

62. P. Han, L. St. Marie, Q. X. Wang, N. Quirk, A. El Fatimy, M. Ishigami, and P. Barbara, "*Highly sensitive MoS2 photodetectors with graphene contacts*", Nanotechnology **29**, 20LT01 (2018).

63. D. A. Siddhanti, D. J. Nash, M. A. Navarro, D. M. Mills, A. Khaniya, B. Dhar, W. E. Kaden, K. Y. Chumbimuni-Torres, R. G. Blair, "*The safer and Scalable Mechanochemical Synthesis of Edge Chlorinated and Fluorinated Few-Layer Graphenes*", J. Mat. Science **52**, 11977 (2017).

64. W. C. Tucker, A. H. Quadery, P. K. Schelling, A. Schulte, R. Blair, W. E. Kaden, and D. Britt, "*Strong catalytic activity of iron nanoparticles on the surfaces of reduced olivine*", Icarus **299**, 502 (2018).

65. A. Thomas, W. Malone, Th. Leoni, A. Ranguis, Z. Chen, O. Siri, A. Kara, P. Zeppenfeld, and C. Becker, "*Growth of Dihydrotetraazapentacene Layers on Cu(110)*", J. Phys. Chem. C **122**, 10828 (2018).

66. W. Malone, J. Matos, A. Kara, "*Adsorption of thiophene on transition metal surfaces with the inclusion of van der Waals effects*", Surf. Sci. **669**, 121 (2018).

67. A. Sibari, Z. Kerrami, A. Kara, A. Ennaoui, M. Hamedoun, A. Benyoussef, O. Mounkachi, M. Benaissa, "*Adsorption and diffusion on a phosphorene monolayer: a DFT study*", J. Solid Stat. Electro-Chem. **22**, 11 (2018).

68. A. Sibari, A. El Marjaoui, M. Lakhal, Z. Kerrami, A. Kara M. Benaissa, A. Ennaoui, M. Hamedoun, A. Benyoussef. O. Mounkachi, "*Phosphorene as a promising anode material for (Li/Na/Mg)-ion batteries: a first-principle study*", Solar Energy Materials and Solar Cells **180**, 253 (2018).

69. T. Jiang, W. Malone, Y. Tong, D. Dragoe, A. Bendounan, A. Kara, V. A. Esaulov, "*I Thiophene Derivatives on Gold and Molecular Dissociation Processes*", J. Phys. Chem. C **121**, 27923 (2017).

70. K. Quertite, K. Lasri, H. Enriquez, A. J. Mayne, A. Bendounan, G. Dujardin , N. Trcera, W. Malone, A. El Kenz, A. Benyoussef, A. Kara, and H. Oughaddou, "*Atomic Structure of Submonolayer NaCl Grown on Ag (110) Surface*", J. Phys. Chem. C **121**, 20272 (2017).

71. T. Kashiwagi, H. Kubo, K. Sakamoto, T. Yuasa, Y. Tanabe, C. Watanabe, T. Tanaka, Y. Komori, R. Ota, G. Kuwano, K. Nakamura, T. Katsuragawa, M. Tsujimoto, T. Yamamoto, R. Yoshizaki, H. Minami, K. Kadowaki, R. A. Klemm, "*The present status of high-Tc superconducting terhahertz emitters*", Superconduct. Sci. Tech. **30**, 074008 (2017).

72. T. Kashiwagi, T. Tanaka, C. Watanabe, H. Kubo, K. Sakamoto, T. Katsuragawa, T. Yuasa, Y. Komori, Y. Tanabe, R. Ota, G. Kuwano, M. Tsujimoto, R. Yoshizaki, H. Minami, T. Yamamoto, R. A. Klemm, and K. Kadowaki, "*Thermoreflectance microscopy measurements of the Joule heating characteristics of high-Tc superconducting terahertz emitters*", J. Appl. Phys. **122**, 233902 (2017).

73. R. A. Klemm, "*Towards a microscopic theory of the Knight shift in an anisotropic, multiband Type-II superconductor*", Magnetochemistry **2018**, 14 (2018).

74. R. A. Klemm, A. E. Davis, Q. X. Wang, T. Yamamoto, D. P. Cerkoney, C. Reid, M. L. Koopman, H. Minami, T. Kashiwagi, J. R. Rain, C. M. Doty, M. A. Sedlack, M. A. Morales, C. Watanabe, M. Tsujimoto, K. Delfanazari, K. Kadowaki, "*Terahertz emission from the intrinsic Josephson junctions of high-symmetry thermally-managed* Bi2Sr2CaCu2O8+δ *microstrip antennas*", IOP Conf. Ser.: Materials Science and Engineering vol. **279**, 012017 (2017).

75. C. H. Yuen, M. Ayouz, E. S. Endres, O. Lakhamanskaya, R. Wester, V. Kokoouline, "*Quantum tunneling isotope exchange reaction H2 + D- → HD + H-*", Phys. Rev. A **97**, 022705 (2018).

76. M.-Y. Song, J. S. Yoon, H. Cho, Y. Itikawa, G. Karwasz, V. Kokoouline, Y. Nakamura, J. Tennyson Cross "*Sections for Electron Collisions with NF3*", J. Phys. Chem. Ref. Data **46**, 043104 (2017).

77. M. W. Logan, J. D. Adamson, D. Le, F. J. Uribe-Romo, "*Structural Stability of N-Alkyl-Functionalized Titanium Metal-Organic Frameworks in Aqueous and Humid Environments*", ACS Applied Materials & Interfaces **9**, 44529 (2017).

78. T. B. Rawal, D. Le, T. S. Rahman, "*MoS2–supported gold nanoparticle for CO hydrogenation*", J. Phys.: Cond. Matt. **29**, 415201 (2017).

79. P. E. Evans, H. K. Jeong, Z. Hooshmand, D. Le, T. B. Rawal, S. Naghibi Alvillar, L. Bartels, T. S. Rahman, P. A. Dowben, "*Methoxy Formation Induced Defects on MoS2*", J. Phys. Chem. C **122**, 10042 (2018).

80. C. S. Merida, D. Le, E. M. Echeverria, A. E. Nguyen, T. B. Rawal, S. Naghibi Alvillar, V. Kandyba, A. Al-Mahboob, Y. Losovyj, K. Katsiev, M.D . Valentin, C.-Y. Huang, M. J. Gomez, I. H. Lu, A. Guan, A. Barinov, T. S. Rahman, P. A. Dowben, and L. Bartels, "*Gold Dispersion and Activation on the Basal Plane of Single-Layer MoS2*", J. Phys. Chem. C **122**, 267 (2018).

81. T. B. Rawal, S. R. Acharya, S. Hong, D. Le, Y. Tang, F. F. Tao, T. S. Rahman, "*High Catalytic Activity of Pd1/ZnO(10$\bar{1}$0) toward Methanol Partial Oxidation: A DFT+KMC Study*", ACS Catalysis **8**, 5553 (2018).

82. C. D. Tempas, T. W. Morris, D. L. Wisman, D. Le, N. U. Din, C. G. Williams, M. Wang, A. V. Polezhaev, T. S. Rahman, K. G. Caulton, and S. L. Tait, "*Redox-active ligand controlled selectivity of vanadium oxidation on Au(100)*", Chem. Sc. **9**, 1674 (2018).

83. M. M. Montgomery, "*What Simulations Tell Us About White Dwarf Evolution in AM CVn Close Binaries*", Astronomic Society of the Pacific **509**, 549 (2017).

84. Z.-C. Yang, A. Hamma, S. M. Gianpaolo, E. R. Mucciolo, C. Chamon, "*Entanglement complexity in quantum many-body dynamics, thermalization, and localization*", Phys. Rev. B **96**, 020408(R) (2017).

85. A. Ahmadi, E. R. Mucciolo, "*A microscopic formulation of dynamical spin injection in ferromagnetic-nonferromagnetic heterostructures*", Phys. Rev. B **95**, 035420 (2017).

86. V. G. Miranda, E. R. Mucciolo, C. H. Lewenkopf, "*Spin-relaxation in disordered graphene: Interplay between puddles and defect-induced magnetism*", J. Phys. Chem. Solids (2017).

87. D. A. Lopez-Delgado, E. Novais, E. R. Mucciolo, A. O. Caldeira, "*Long-time efficacy of the surface code in the presence of a superohmic environment*", Phys. Rev. A **95**, 062328 (2017).

88. Z.-C. Yang, S. Kourtis, C. Chamon, E. R. Mucciolo, A. E. Ruckenstein, "*Iterative compression-decimation scheme for tensor network optimization*", Phys. Rev. E **97** 033303 (2018).

89. H. Kim, K. Wang, Y. Nakajima, R. Hu, S. Ziemak, P. Syers, L Wang, H. Hodovanets, J. D. Denlinger, P. M. R. Brydon, D. F. Agterberg, M. A. Tanatar, R. Prozorov, J. Paglione, "*Beyond Spin-Triplet: Nodal Topological Superconductivity in a Noncentrosymmetric Semimetal*", Sci. Adv. **4**, eaao4513 (2018).

90. K. Dimitri, M. M. Hosen, G. Dhakal, H. Choi, F. Kabir, D. Kaczorowski, T. Durakiewicz, J.-X. Zhu, M. Neupane, "*Dirac State in a Centrosymmetric Superconductor alpha-PdBi2*", Phys. Rev. B **97**, 144514 (2018).

91. M. M. Hosen, K. Dimitri, A. Aperis, P. Maldonado, I. Belopolski, G. Dhakal, F. Kabir, C. Sims, M Z. Hasan, D. Kaczorowski, T. Durakiewicz, P. M. Oppeneer, and M. Neupane, "*Observation of Gapless Dirac Surface States in ZrGeTe*", Phys. Rev. B **97**, 121103 (2018).

92. H. Choi, M. Neupane, T. Sasagawa, E. M. Chia, and J.-X. Zhu, "*Low-energy surface states in the normal state of alpha-PdBi2 superconductor*", Phys. Rev. Materials **1**, 034201 (2017).

93. R. Gibson, S. Vangala, I. O. Oladeji, E. Smith, F. Khalizadeh-Rezaie, K. Leedy, R. E. Peale, and J. W. Cleary, "*Conformal spray-deposited fluorine-doped tin oxide for mid- and long-wave infrared plasmonics*", Optical Materials Express **7**, 2477 (2017).

94. B. Koroglu, S. Neupane, O. Pryor, R. E. Peale, S. S. Vasu, "*High Temperature Infrared Absorption Cross Sections of Methane near 3.4 m in Ar and CO2 mixtures*", J. Quantitative Spectroscopy and Radiative Transfer **206**, 36 (2018).

95. S. F. H. Alhasan, S. R. Calhoun, H. Abouelkhair, V. C. Lowry, R. E. Peale, I. Rezadad, E. M. Smith, J. W. Cleary, I. O. Oladeji, "*Smooth TiO2 Thin Films Grown by Aqueous Spray Deposition for Long-Wave Infrared Applications*", MRS Advances **3**, 255 (2018).

96. H. Abouelkhair, P. N. Figueiredo, S. R. Calhoun, C. J. Fredricksen, I. O. Oladeji, E. M. Smith, J. W. Cleary and R. E. Peale, "*Ternary lead-chalcogenide room-temperature midwave infrared detectors grown by spray-deposition*", MRS Advances **3**, 291 (2018).

97. S. R. Acharya, T. S. Rahman, "*Towards Multiscale Modeling of Thin Film Growth Processes using SLKMC*", J. Mat. Res. **33**, 709 (2018).

98. D. Le, T. S. Rahman, "*Pt-Dipyridyl Tetrazine metal-organic network on the Au(100) surface: Insights from first principles calculations*", Faraday Transactions **204**, 83 (2017).

99. J. Pal, T. B. Rawal, M. Smerieri, S. Hong, M. Alatalo, L. Savio, L. Vattuone, T. S. Rahman, M. Rocca, "*Adatom extraction off pristine terraces by dissociative oxygen adsorption at metal surfaces: Combined STM and DFT investigation of O/Ag(110)*", Phys. Rev. Lett. **118**, 226101 (2017).

100. T. Komesua, D. Le, I. Tanabe, E. F. Schwier, Y. Kojima, M. Zheng, K. Taguchi, K. Miyamoto, T. Okuda, H. Iwasawa, K. Shimada, T. S. Rahman, and P. A. Dowben, "*Adsorbate doping of MoS_2 and WSe_2: the influence of Na and Co*", J. Phys. Condens. Matt. **29**, 285501 (2017).

101. H. P. Saha, "*Valence electron correlation in the double K-shell photoionization of atomic Beryllium*", Phys. Rev. A **95**, 063423 (2017).

102. A. H. Quadery, B. Doan, W. C. Tucker, A. Dove, and P. K. Schelling, "*Role of surface chemistry in dissipation during collisions of silica nano grains*", The Astrophysical Journal **84**, 105 (2017).

103. B.-J. Niebuur, K.-L. Claude, S. Pinzek, C. Cariker, K. N. Raftopoulos, V. Pipich, M.-S. Appavou, A. Schulte, C. M. Papadakis, "*Pressure-dependence of Poly(N-isopropylacrylamide) mesoglobule formation in aqueous solution*", ACS Macro Lett. **6**, 1180 (2017).

104. M. H. Futscher, M. Philipp, P. Müller-Buschbaum, A. Schulte, "*The role of backbone hydration of poly(N-isopropyl acrylamide) across the volume phase transition compared to its monomer*", Sci. Rep. **7**, 1 (2017).

105. N. Dhakal, M. Alcantara Ortigoza, S. Stolbov, "*On the Elusive Link between Adsorbate's Binding Energy and Bond Strength: An Illustration from CO Adsorption on Metal- Doped Graphene*", Chemistry Select **2**, 9479 (2017).

106. N. Kandel, T. Zheng, Q. Huo, S. A. Tatulian, "*Membrane Binding and Pore Formation by a Cytotoxic Fragment of Amyloid β Peptide*", J. Phys. Chem. B **121** 10293 (2017).

107. J. Paul, C. E. Stevens, H. Zhang, P. Dey, D. McGinty, S. A. McGill, R. P. Smith, J. L. Reno, V. Turkowski, I. E. Perakis, D. J. Hilton, D. Karaiskaj, "*Coulomb-interaction induced coupling of Landau levels in intrinsic and modulation-doped quantum wells*", Phys. Rev. B **95**, 245314 (2017).

108. V. Turkowski, N. Ud Din, T. S. Rahman, "*Time-Dependent Density-Functional Theory and Excitons in Bulk and Two-Dimensional Semiconductors*", Computation **5**, 39 (2017).

109. V. Turkowski, T. S. Rahman, "*Nonadiabatic exchange-correlation kernel for strongly correlated materials*", J. Phys.: Condens. Matter **29**, 455601 (2017).

110. K. Kuhnke, V. Turkowski, A. Kabakchiev, T. Lutz, T. S. Rahman, and K. Kern, "*Pentacene Excitons in Strong Electric Fields*", Chem. Phys. Chem. **19**, 1 (2018).

111. M. E. Vaida, T. M. Bernhardt, "*Tuning the ultrafast photodissociation dynamics of CH3Br on ultrathin MgO films by reducing the layer thickness to the 2D limit*", Chem. Phys. Lett. **688**, 106 (2017).

112. B. M. Marsh, M. E. Vaida, S. K. Cushing, B. Lamoureux, S. R. Leone, "*Measuring the surface photovoltage of a Schottky barrier under intense light conditions: Zn/p-Si(100) by laser time-resolved extreme ultraviolet photoelectron spectroscopy*", J. Phys. Chem. C **121**, 21904 (2017).

Conference Proceedings and Abstracts by In-Unit Physics Faculty (109)

1. C. Schultz and D. T. Britt, "*Structural and Mechanical Properties of Asteroid Regolith Simulant*", SSERVI Exploration Science Forum, July 2017.

2. D. T. Britt, "*The Strength Characteristics of Small Asteroids*", SSERVI Exploration Science Forum, July 2017.

3. W. Chambers, P. Metzger, A. Dove, and D. Britt, "*Computational and Experimental Simulation of Exhaust-Regolith Interactions*", SSERVI Exploration Science Forum, July 2017.

4. W. Chambers, P. Metzger, A. Dove, and D. Britt, "C Exhaust-regolith interactions: analysis of the instability threshold for the Moon, Mars, and Phobos", SSERVI Exploration Science Forum, July 2017.

5. K. Carroll, A. Braun, D. Britt, M. Connors, Y. Li, H. Spencer, and R. Zee, "*The Geophysical Reconnaissance Asteroid Surface Probe (GRASP), a lander mission to determine asteroid density distribution*". COSPAR Scientific Assembly.

6. R. J. Macke, D. T. Britt, C. Schultz, and G. J. Consolmagno, "*Low-Temperature Heat Capacity and Thermal Cycling of CI simulant Material*", 80th Annual Meeting of the Meteoritical Society, July 2017.

7. D. T. Britt, S. Covey, and C. Schultz, "University of Central Florida / Deep Space Industries Asteroid Regolith Simulants", DPS annual meeting, October 2017.

8. L. Pohl and D. T. Britt, "*Temperature and rate of dehydration of major constituents of carbonaceous chondrites*", DPS annual meeting, October 2017.

9. T. M. Becker, C. Runyon, H. Cynthia, D. T. Britt, "*Science and Exploration in the Classroom & Beyond: An Interdisciplinary Curriculum STEAM Developed by SSERVI Educators & Scientists*", DPS annual meeting, October 2017.

10. H. Miyamoto, D. T. Britt, and 18 Co-authors, "*Phobos Environment Model and Regolith Simulant for MMX Mission*", 49th Lunar and Planetary Science Conference, March 2018.

11. K. M. Cannon and D. T. Britt, "*Colloidal Dispersions in the Early Solar System*", 49th Lunar and Planetary Science Conference 2018.

12. L. Pohl and D. T. Britt, "*Dehydration Processes of Carbonaceous Chondrites*", 49th Lunar and Planetary Science Conference 2018.

13. C. D. Schultz and D. T. Britt, "*Mechanical properties of CI carbonaceous asteroid regolith simulant*", 49th Lunar and Planetary Science Conference 2018.

14. K. M. Cannon, D. T. Britt, P. Metzger, Z. Landsman, S. Covey, C. D. Schultz, and M. Peppin, "*Exploring the Physical Properties of High Fidelity Martian and Phobos Regolith Simulants: Support for Mission Development and Hardware Design*", 49th Lunar and Planetary Science Conference 2018.

15. D. T. Britt, K. M. Cannon, C. D. Schultz, Z. Landsman, P. Metzger, M. Peppin, T. M. Smith, and R. Fritsche, "*New High Fidelity Martian and Phobos Regolith Simulants: Enabling Tools for Exploring the Mars System and ISRU Development*", 49th Lunar and Planetary Science Conference 2018.

16. Z. A. Landsman, P. T. Metzger, A. S. Rivkin, D. T. Britt, K. M. Cannon, C. Hibbitts, and K. Stockstill-Cahill, "*A Spectroscopic Study of High-Fidelity Simulated Primitive Asteroid Regolith*", 49th Lunar and Planetary Science Conference 2018.

17. P. Metzger, D. T. Britt, K. M. Cannon, C. D. Schultz, Z. Landsman, M. Peppin, and S. Covey, "*Measuring the Fidelity of Asteroid Regolith Simulants*", 49th Lunar and Planetary Science Conference 2018.

18. D. T. Britt, C. Schultz, and S. Covey, "*UCF/DSI Asteroid Regolith Simulants*", ASCE Earth and Space Conference, April 2018.

19. D. T. Britt, K. M. Cannon, and P. Metzger, "*Phobos Simulants for MMX Mission*", ASCE Earth and Space Conference, April 2018.

20. S. Covey, J. S. Lewis, P. Metzger, and D. T. Britt, "*Developing Carbonaceous Chondrite Asteroid Simulants*", ASCE Earth and Space Conference, April 2018.

21. D. T. Britt, C. Schultz, and P. Metzger, "*Thermal Cycling and the Strength of Primitive Asteroids*", ASCE Earth and Space Conference, April 2018.

22. Z. Chen, G. Garrido, Z. Berry, I. Turgeon, and F. Yonekura, "*Designing online learning modules to conduct preand post-testing at high frequency*", In Physics Education Research Conference Proceedings, pp. 84–87, American Association of Physics Teachers, Cincinnati, OH, 2017.

23. W. James, K. Lamons, J. Schreffler, E. Vasquez, and J. J. Chini, "*Exploring learner variability: Experiences of students with cognitive disabilities in postsecondary STEM*", Proceedings of the Physics Education Research Conference, Cincinnati, OH, July 2017.

24. J. Schreffler, E. Vasquez, W. James, and J. J. Chini, "*Using observations of Universal Design for Learning to enhance post-secondary STEM teaching practices*", Proceedings of the Physics Education Research Conference, Cincinnati, OH, July 2017.

25. B. Zamarripa Roman, C. Doty, M. Wilcox, N. Klinger, J. W. T. Pond, J. S. Von Korff, and J. J. Chini, "*Discrepancies between the SCALE-UP model and instructors' perceptions of implementation*", Proceedings of the Physics Education Research Conference, Cincinnati, OH, July 2017.

26. 1. R. Cebulka and E. del Barco, *Enabling the Study of Anisotropy driven Quantum Dynamics of Single-Molecule Magnet Spins at 100mK.* APS March Meeting – March 2017, Los Angeles, USA.

27. P. Vayda, K. C. Amit, J. van Tol, D. Lederman, and E. del Barco, "*High-Frequency Spin Pumping from Insulating Antiferromagnet MnF2*". APS March Meeting Meeting – March 2017, Los Angeles, USA.

28. M. A. Sierra, D. Sanchez, A. R. Garrigues, E. del Barco, L. Wang, and C. A. Nijhuis, "*Interacting and noninteracting molecular tunnel junctions: Temperature and magnetic effects*". International Conference on Supperlattices, Nanostructures and Nanodevices (ICSNN) – July 2018, Madrid, Spain.

29. M. A. Sierra, D. Sanchez, A. R. Garrigues, E. del Barco, L. Wang, and C. A. Nijhuis, "*Interacting and noninteracting molecular tunnel junctions: Temperature and magnetic effects*". International Conference on the Physics of Semiconductors (ICPS) – April 2018, Montpellier, France.

30. Y. Wang, O. Das, J. Liu, X. Xu., R. Roy, J. F. Donoghue, and G. H. Means, "*Comparison of radiocarbon ages of sediments, plants, and shells from coastal lakes in north Florida*". Eos, Transactions, Amer. Geophys. Union (2017).

31. S. Jahan, Y. Wang, J. Liu, H. Means, and J. F. Donoghue, "*Reconstruction of paleostorm history using geochemical proxies archived in the sediments of a coastal lake in north Florida*". Geological Society of America Abstracts with Programs. Vol. 49, No. 3, p. 22 (2017).

32. X. Feng, "*Grain boundary effect in electroreduction catalysis for renewable energy conversion*". 232nd ECS Meeting, October 2017, National Harbor, MD.

33. X. Feng, "*Grain-boundary-supported active sites for electrochemical catalysis*". AVS 64th International Symposium & Exhibition, November 2017, Tampa, FL.

34. J. M. Bauer, A. K. Mainzer, E. A. Kramer, T. Grav, J. R. Masiero, Y. R. Fernandez, C. R. Nugent, T. Spahr, R. M. Cutri, E. L. Wright, "*Comet Science with the Reactivated NEOWISE Mission*", 49th Lunar and Planetary Science Conference, March 2018, held at The Woodlands, TZ.

35. C. M. Lisse, B. T. Bolin; H. A. Weaver, Y. R. Fernandez, D. Huppenkothen, R. L. Jones, M. Jurić, J. Moeyens, C. Schambeau, C. T. Slater, Z. Ivezić, A. J. Connolly, "*APO Photometric Imaging of the First Detected Interstellar Object in the Solar System: 1I/'Oumuamua*", 49th Lunar and Planetary Science Conference , March,2018, held at The Woodlands, TZ.

36. P. A. Taylor, S. E. Marshall, F. Venditti, A. K. Virkki, L. A. M. Benner, M. Brozovic, S. P. Naidu, E. S. Howell, T. R. Kareta, V. Reddy, D. Takir, A. S. Rivkin, L. F. Zambrano-Marin, S. S. Bhiravarasu, E. G. Rivera-Valentin, B. Aponte-Hernandez, C. Rodriguez Sanchez-Vahamonde, M. C. Nolan, J.D. Giorgini, R. J. Vervack, Y. R. Fernandez, J. L. Crowell, D. S. Lauretta, T. Arai, "*Radar and Infrared Observations of Near-Earth Asteroid 3200 Phaethon*", 49th Lunar and Planetary Science Conference, March 2018, held at The Woodlands, TX.

37. Y. R. Fernandez, R. J. Vervack Jr. M. M. Knight, S. R. McCandliss, N. Dello Russo, P. Feldman, C. M. Lisse, P. Tamblyn, "*MESSENGER's Special Delivery: Gas and Dust Production from Comets 2P/Encke and C/2012 S1 (ISON) at Small Heliocentric Distances*". American Geophysical Union, Fall Meeting 2017, December 2017, New Orleans, LA.

38. J. D. Rosser, J. M. Bauer, A. K. Mainzer, E. A. Kramer, J. R. Masiero, C. R. Nugent, S. M. Sonnett, Y. R. Fernandez, E. K. Wright, "*Behavioral Characteristics and CO+CO2 Production Rates of Halley-Type Comets Observed by NEOWISE*", American Astronomical Society, DPS meeting #49, October 2017, Provo, UT.

39. J. M. Bauer, T. Grav, A. K. Mainzer, E. A. Kramer, J. R. Masiero, M. S. Kelley, C. R. Nugent, S. M. Sonnett, Y. R. Fernandez, C. M. Lisse, K. J. Meech, J. D. Rosser, R. G. Walker, E. L. Wright, "*NEOWISE Reactivated Mission Cometary CO+CO2: Preliminary Results from Years 1 through 3*", American Astronomical Society, DPS meeting #49, October 2017, Provo, UT.

40. L. Woodney, C. A. Schambeau, Y. R. Fernandez, "*Rotation and Morphology of Comet 252P/LINEAR*", American Astronomical Society, DPS meeting #49, October 2017, Provo, UT.

41. P. A. Taylor, A. Virkki, B. Warner, A. Aznar, E. S. Howell, R. J. Vervack, J. L. Crowell, M. Hinkle, F. Venditti, L. F. Zambrano-Marin, B. Aponte-Hernandez, E. G. Rivera-Valentin, S. Saran Bhiravarasu, C. Rodriguez Sanchez-Vahamonde, A. W. Harris, Y. R. Fernandez, S. E. Marshall, "*Radar, Optical, and Infrared Observations of Equal-Mass Binary Near-Earth Asteroid (190166) 2005 UP156*", American Astronomical Society, DPS meeting #49, October 2017, Provo, UT.

42. S. E. Marshall, E. S. Howell, R. J. Vervack, C. Magri, J. L. Crowell, Y. R. Fernandez**,** D. B. Campbell, M. C. Nolan, V. Reddy, P. Pravec, B. Bozek, "*Thermophysical Modeling of Potentially Hazardous Asteroid (85989) 1999 JD6*", American Astronomical Society, DPS meeting #49, October 2017, Provo, UT.

43. R. Kokotanekova, C. Snodgrass, P. Lacerda, S. C. Lowry, Y. R. Fernández, S. F. Green, C. Tubiana, A. Fitzsimmons, H. H. Hsieh, "*Evidence for low tensile strength in comet nuclei*", European Planetary Science Congress, September 2017, Riga, Latvia.

44. B. T. Bolin, H. A. Weaver, Y. R. Fernandez, C. M. Lisse, D. Huppenkothen, R. L. Jones, M. Jurić, J. Moeyens, C. A. Schambeau, C. T. Slater, Z. Ivezić, A. J. Connolly, "*APO Time Resolved Color Photometry of Highly-Elongated Interstellar Object 1I/'Oumuamua*". Conference on The Trans-Neptunian Solar System, Coimbra, Portugal, March 2018.

45. D. Glavin, S. Squyres, and the CAESAR Project Team, "*An Overview of the Comet Astrobiology Exploration Sample Return (CAESAR) New Frontiers Mission*". Conference of the European Geophysical Society, Vienna, Austria, April 2018.

46. R. C. Challener, J. Harrington, P. E. Cubillos, J. Blecic, D. Deming, and C. Hellier, "*A comparison of BLISS and PLD on lowSNR WASP29b Spitzer observations*", AAS Meeting Abstracts 231 (2018).

47. P. Cubillos, J. Blecic, and J. Harrington, "*Open source software for exoplanet atmospheric modeling*", AAS Meeting Abstracts 231 (2018).

48. J. Harrington, J., M. D. Himes, P. E. Cubillos, J. Blecic, and R. C. Challener, "*BARTTest: Community-standard atmospheric radiative transfer and retrieval tests*", AAS Meeting Abstracts 231 (2018).

49. K. J. McIntyre, J. Harrington, R. C. Challener, M. Lenius, J. D. Hartman, G. A. Bakos, J. Blecic, P. E. Cubillos, and A. Cameron, "*Atmospheric retrievals of HATP16b and WASP11b/ HATP10b*", AAS Meeting Abstracts 231 (2018).

50. R. Challener, J. Harrington, P. Cubillos, J. Blecic, and D. Deming, "*PixelLevel Decorrelation and BiLinearly Interpolated Subpixel Sensitivity applied to WASP29b*", AAS/DPS Meeting Abstracts 49, (2017).

51. J. Harrington, M. D. Himes, P. Cubillos, J. Blecic, and R. C. Challener, "*BARTTest: Community-standard radiative transfer tests II: Retrieval models*", AAS/DPS Meeting Abstracts 49 (2017).

52. M. D. Himes, J. Harrington, P. Cubillos, J. Blecic, and R. C. Challener, "*BARTTest: Community-standard radiative transfer tests I: Forward models*", AAS/DPS Meeting Abstracts 49 (2017).

53. K. J. McIntyre, J. Harrington, J. Blecic, P. E. Cubillos, R. C. Challener, and G. Bakos, "*HATP16b: A Bayesian atmospheric retrieval*", AAS/DPS Meeting Abstracts 49 (2017).

54. M. A. Reinhard, J. Harrington, R. C. Challener, P. E. Cubillos, and J. Blecic, "*Dayside atmospheric structure of HD209458b from Spitzer eclipses*", AAS/DPS Meeting Abstracts 49 (2017).

55. J. Harrington, "*The legacy of Spitzer exoplanet observations. In Science Enabled by Novel Infrared Instrumentation*", Cornell University, Ithaca, NY, USA, June, 2017.

56. M D. Himes, J. Harrington, and N. B. Lust, "*Interpixel size variations as source of Spitzer systematics. In Science Enabled by Novel Infrared Instrumentation*", Cornell University, Ithaca, NY, June 2017.

57. M. Lodge, G. Chang, B. Singh, J. Hellerstedt, M. T. Edmonds, D. Kaczorowski, M. M. Hosen, M. Neupane, M. Fuhrer, B. Weber, M. Ishigami, "*Quasiparticle Interference Mapping of ZrSiS*". AVS National Symposium, October 2017.

58. M. Ishigami, R. Tsuchikawa, D. Heligman, B. T. Blue, Z.Y. Zhang, A. Ahmadi, E. R. Mucciolo, J. Hone, "*Measurement of Resistance Induced by a Single Potassium Atom on Chiral-Angle Known Nanotubes: Understanding the Impact of a Model Scatterer for Nanoscale Sensors*", AVS National Symposium, October 2017.

59. M. S. Lodge, C. Tang, B. Blue, W. Hubbard, A. Martini, B. Dawson, M. Ishigami, "*Lubricity of Gold Nanocrystals on Graphene Measured using Quartz Crystal Microbalance*", AVS National Symposium 2017, October, 2017.

60. M. Ishigami, B. Blue, R. Tsuchikawa, A. Ahmadi, D. Heligman, Z. Zhang, J. Hone, E. Mucciolo, "*Experimental observation of the Wigner cusps in a metallic carbon nanotube*", APS March Meeting 2018, Los Angeles, CA.

61. B. Blue, M. S. Lodge, C. Eckberg, M. Ishigami, and J. P. Paglione, "*Scanning tunneling microscopy and spectroscopy of BaNi2As2 at 4.8 K*", APS March Meeting 2018, Los Angeles, CA.

62. J. Thompson, C. Chen, B. Blue, H. Chen, J. Velasco, M. Ishigami, and S. Aloni, "*Direct growth of WS2 on h-BN by Chemical Vapor Deposition*", APS March Meeting 2018, Los Angeles, CA.

63. W. E. Kaden, "*Probing the Chemical-State of Zinc centers in unknown Environments: A Comparison of Conventional and core-core-core Auger Parameter* Analyses". 64th AVS International Symposium & Exhibition, Tampa Bay, FL, November 2017.

64. S. W. Bonnough and R. A. Klemm, "*Terahertz emission from the intrinsic Josephson junctions of thermally-managed annular* Bi2Sr2CaCu2O8+δ *microstrip antennas*", EAM-ELEC-S11-015-2018, January 2018, Orlando, FL.

65. R. A. Klemm, "*Terahertz emission from the intrinsic Josephson junctions of high-symmetry thermally-managed* Bi2Sr2CaCu2O8+δ *microstrip antennas*", E31.00013 APS March Meeting, Los Angeles, CA, 2018.

66. J. Singh, M. Khamesyan, and V. Kokoouline, "*Theoretical method to study electron-impact rotational excitation of neutral molecules and ions*". Contributed talk, DAMOP 2017-48th Annual APS Division of Atomic, Molecular, and Optical Physics, June 2017, Sacramento, CA.

67. C. H. Yuen and V. Kokoouline, "*Theoretical study of the* D - + H 2 → H - + HD *reaction at low* energies". Poster, Cold Molecular Ions Workshop, May 2017, Les Houches, France.

68. D. Le and T. S. Rahman, "*A robust artificial neural network potential for Si(001)*". APS March Meeting 2018, Los Angeles, CA.

69. T. S. Rahman and D. Le, "*Epitaxial angle of MoS2 grown on h-BN: A first principle and machine learning study*", APS March Meeting 2018, Los Angeles, CA.

70. Z. Hooshmand, D. Le, and T. S. Rahman, "*First principles studies of Carbon ring formation underneath of hexagonal boron nitride growth on Rh(111)*", APS March Meeting 2018, Los Angeles, CA.

71. L. Zhang, J. Reyes, S. Kourtis, C. Chamon, E. Mucciolo, and A. Ruckenstein, "*Tensor Network Algorithms for Counting 2-SAT Solutions*". APS March Meeting, Los Angeles, CA, 2018.

72. J. Reyes, L. Zhang, S. Kourtis, C. Chamon, E. Mucciolo, and A. Ruckenstein, "*A Tensor Network Algorithm for Solution of 3-SAT Solutions*". APS March Meeting, Los Angeles, CA, 2018.

73. Z. Yang, S. Kourtis, C. Chamon, E. Mucciolo, and A. Ruckenstein, "*Iterative Compression-Decimation Scheme for Tensor Network Optimization*". APS March Meeting, Los Angeles, CA, 2018.

74. Z. Yang, S. Kourtis, C. Chamon, E. Mucciolo, and A. Ruckenstein, "*Tensor network for reversible classical computation and time evolution of quantum many-body systems*". APS March Meeting, Los Angeles, CA, 2018.

75. L. Zhang, C. Chamon, E. Mucciolo, and A. Ruckenstein, "*Constructing ultra-slow glasses in lattice models for reversible computation*". APS March Meeting, Los Angeles, CA, 2018.

76. P. Patil, S. Kourtis, C. Chamon, E. Mucciolo, and A. Ruckenstein, "*Quantum annealing to solve 3-regular 3-XORSAT on a lattice*". APS Society March Meeting, Los Angeles, CA, 2018.

77. F. Laliberte, M. E. Boulanger, M. Dion, S. Badoux, N. Doiron-Leyraud, L. Taillefer, W. A. Phelan, S. M. Koohpayeh, T. M. McQueen, X. Wang, Y. Nakajima, T. Metz, and J. Paglione, "*Heat transport in the Kondo insulator SmB6*", APS March Meeting, Los Angeles, CA, 2018.

78. Z. Xiang, L. Chen, T. Asaba, C. Tinsman, Y. Nakajima, D. Kaczorowski, M. Neupane, L. Li, "*Unusual high-frequency quantum oscillations in topological nodal semimetal ZrSiS*", APS March Meeting, Los Angeles, CA, 2018.

79. M. M. Hosen, M. Neupane, and Co-authors, "*Discovery of topological nodal-line fermionic phase in a magnetic material GdSbTe",* APS March Meeting, 2018, Los Angeles, CA.

80. G. Dhakal, M. Neupane, and Co-authors, "*Observation of Gapless Dirac Surface States in ZrGeTe*", APS March Meeting, 2018, Los Angeles, CA.

81. K. Sims, M. Neupane, and Co-authors, "*Observation of a Dirac state in a half-Heusler material YPtBi*", APS March Meeting, 2018, Los Angeles, CA.

82. M. M. Hosen, M. Neupane, "*Tunability of the topological nodal-line semimetal phase in Zr6-type Materials*", Meeting of the Florida Chapter of the AVS, UCF, Orlando, May 2018.

83. G. Dhakal, M. Neupane, and Co-authors, "*Observation of Gapless Dirac Surface States in ZrGeTe*", Meeting of the Florida Chapter of the AVS, UCF, Orlando, May 2018.

84. K. Sims, M. Neupane, and Co-authors, "*Observation of a Dirac state in a half-Heusler material YPtBi*", Meeting of the Florida Chapter of the AVS, UCF, Orlando, May 2018.

85. F. Kabir, M. Neupane, and Co-authors, "*Dirac-like dispersion in nearly compensated ZrAs2*", Meeting of the Florida Chapter of the AVS, UCF, Orlando, May 2018.

86. M. M. Hosen, M. Neupane, and Co-authors, "*Distinct Multiple Fermionic States in a Single Topological Metal*", Meeting of the Florida Chapter of the AVS, UCF, Orlando, May 2018.

87. L. Li, M. Neupane, and Co-authors, "*Unusual high-frequency quantum oscillations in topological nodal semimetal ZrSiS*", APS March Meeting, 2018, Los Angeles, CA.

88. S. R. Calhoun, V. C. Lowry, R. Stack, R. N. Evans, J. R. Brescia, C. J. Fredricksen, J. Nath, R. E. Peale, E. M. Smith, and J. W. Cleary, "*Effect of dispersion on metal–insulator–metal infrared absorption resonances*". Fall 2017 MRS Meeting.

89. S. Fawzi, H. Alhasan, S. R. Calhoun, H. Abouelkhair, V. C. Lowry, R. E. Peale, I. Rezadad, E. M. Smith, J. W. Cleary, I. O. Oladeji, "*Smooth TiO2 Thin Films Grown by Aqueous Spray Deposition for Long-Wave Infrared Applications*", Fall 2017 MRS Meeting.

90. H. Abouelkhair, P. N. Figueiredo, S. R. Calhoun, C. J. Fredricksen, I. O. Oladeji, E. M. Smith, J. W. Cleary and R. E. Peale, "*Ternary lead-chalcogenide room-temperature midwave infrared detectors grown by spray-deposition*", Fall 2017 MRS Meeting.

91. S. Calhoun, R. Evans, I. O. Oladeji, J. Cleary, E. M. Smith, and R. E. Peale, "*Vanadium Oxide Thin Film by Aqueous Spray Deposition*", Spring 2018 MRS Spring Meeting.

92. S. R. Calhoun, V. C. Lowry, R. Stack, R. N. Evans, J. R. Brescia, C. J. Fredricksen, J. Nath, R. E. Peale, E. M. Smith, and J. W. Cleary, "*Effect of dispersion on metal–insulator–metal infrared absorption resonances*", Fall 2017 MRS meeting.

93. R. E. Peale, "*Long-wave and mid-wave infrared micro-bolometers with gold black or wavelength-selective absorbers*", Proceedings of the SPIE 10656, Image Sensing Technologies: Materials, Devices, Systems, and Applications V, 106560B (2018). Invited paper.

94. H. P. Saha, "*Double Photoionization of Neon Atoms using Screening potential approach*", 48th annual DAMOP meeting, Sacramento, California, June 5-9, 2017.

95. H. Quadery, B. Doan, W. C. Tucker, A. R. Dove, and P. K. Schelling, "*Atomic-scale simulation of dust Surface chemistry and dissipation beyond existing theory*", Annual Meeting of the Division of Planetary Sciences, Astronomical Society, October 2017.

96. B.-J. Niebuur, K.-L. Claude, S. Pinzek, C. Cariker, K. N. Raftopoulos, V. Pipich, M.-S. Appavou, A. Schulte, C. M. Papadakis, "*Influence of Pressure on the Aggregation Behavior of Poly(Nisopropylamide)*". 9th International Symposium on Molecular Mobility and Order in Polymer Systems. St. Petersburg, Russia, June 2017.

97. B. M. Futscher, M. Philipp, P. Mueller-Buschbaum, A. Schulte, "*The role of backbone hydration of Poly(N-isopropyl acrylamide) across the LCST transition*". 48th Meeting of the Colloid Society, Munich, Germany, September 2017.

98. S. Borges, L. Chow, W. S. Chen, S.-F. Huang, M.-J. Jen, L.-B. Chang, A. Schulte, "*Development of Gallium Nitride waveguide structures for evanescent Raman spectroscopy of bioassemblies*". 61st Annual Meeting of the Biophysical Society, 3397-Pos, San Francisco, CA, February 2018.

99. B.-J. Niebuur, K.-L. Claude, S. Pinzek, C. Cariker, K. N. Raftopoulos, V. Pipich, M.-S. Appavou, A. Schulte, C. M. Papadakis, "*Pressure-dependence of Poly(N-isopropylacrylamide) mesoglobule formation in aqueous solution*". American Physical Society March Meeting, R52.00001, Los Angeles, CA, 2018.

100. B.-J. Niebuur, L. Chiapissi, X. Zhang, F. Jung, V. Pipich, M.-S. Appavou, A. Schulte, C. M. Papadakis, "*Kinetics of Mesoglobule Formation in Dependence on Pressure of Aqueous Poly(Nisopropylacrylamide) Solutions*". Spring Meeting of the German Physical Society, CPP 69.5, Berlin, Germany, March 2018.

101. B.-J. Niebuur, K.-L. Claude, R. Schweins, V. Pipich, M.-S. Appavou, A. Schulte, C. M. Papadakis, "*SANS Study on the Pressure-Dependence of the Cononsolvency Effect in Aqueous PNIPAM Solutions*". Spring Meeting of the German Physical Society, CPP 20.13, Berlin, Germany, March 2018.

102. N. Kandel, J. O. Matos, S. A. Tatulian, "*Effect of cholesterol on membrane pore formation by amyloid*", J. Biophys. 112 (3), 226a (2018). Biophysical Society 62nd Annual Meeting, February 2018, San Francisco, CA.

103. V. Turkowski, D. Cerkoney, and T. S. Rahman, "*Femtosecond laser pulse-induced breakdown of the insulating phase in bulk V2O3: a TDDFT+DMFT study*", APS March Meeting, Los Angeles, CA, 2018.

104. B. Young, T. Nguyen, M. A. K. Pathan, M. Wasuwanich, D. M. Popolan-Vaida, and M. E. Vaida, "*Design and Construction of a Photoreactor to Explore the Photocatalytic Properties of 2D Materials under Ambient Conditions*", Florida Chapter American Vacuum Society, May 2018.

105. M. A. K. Pathan, M. Wasuwanich, and M. E. Vaida, "*Preparation and characterization of 2D nanostructured materials for photocatalytic applications*", The 94th Florida Annual Meeting and Exposition, Tampa, FL, May 2018.

106. M. E. Vaida, B. M. Marsh, B. Lamoureux, and S. R. Leone, "*Tracking the ultrafast charge carrier dynamics at the surface of photocatalytic materials*", The 94th Florida Annual Meeting and Exposition, Tampa, FL, May 2018.

107. M. E. Vaida, B. M. Marsh, B. Lamoureux, and S. R. Leone, "*Monitoring the Non-Metal to Metal Transition and Ultrafast Charge Carrier Dynamics of Supported Clusters by Femtosecond XUV Photoemission Spectroscopy*", AVS 64th International Symposium, Tampa, FL, November 2017.

108. M. E. Vaida, B. M. Marsh, B. Lamoureux, and S. R. Leone, "*Electronic structure and ultrafast charge carrier dynamics of Zn clusters supported on a Si(100) surface*", Optical Society of America Frontiers in Optics & Laser Science APS/DLS, Washington DC, September 2017.

109. T. Jiang, T. B. Rawal, D. Le, and T. S. Rahman “Towards Understanding CO_2 Hydrogenation on Defect-Laden Hexagonal Boron Nitride”, COMSTECH-CIIT Joint International Workshop on Modern Trends in Computation and Experimentation towards the Rational Design of Materials for Energy Needs, Islamabad, Pakistan, May 22-26, 2017.

110. T. Jiang, T. B. Rawal, D. Le, and T. S. Rahman “Towards Understanding CO_2 Hydrogenation on Defect-Laden Hexagonal Boron Nitride”, AVS 64th International Symposium & Exhibition 2017, Tampa, FL, October 2017.

111. Naseem Ud Din, Volodymyr Turkowski and T. S. Rahman “Excitonic properties of hydrogenated monolayer MoS2” CIIT-COMSTECH Joint Follow-up Workshop on Rational Design of Materials for Energy Needs: Computation and Experimentation August 28, 2017 Islamabad Pakistan

112. Naseem Ud Din, Duy Le, T. S. Rahman, “Predictive Modeling of Metal-Organic Chain with Active Metal Site” COMSTECH-CIIT Joint International Workshop on Modern Trends in Computation and Experimentation towards the Rational Design of Materials for Energy Needs, Islamabad, Pakistan, May 22-26, 2017

113. Naseem Ud Din, Duy Le, T. S. Rahman, “Linear Transition Metal-Dipyridyltetrazine Chains with Active Metal Sites: A First Principles Study” 2018 Annual Symposium Florida Chapter of AVS (FL-AVS), May 7-8, 2018, Orlando

114. T. B. Rawal, D. Le, and T. S. Rahman, "First-Principles Study of Single-Layer MoS2-Based Catalysts for Alcohol Synthesis from Syngas", Electronic Structure 2017 Workshop, Princeton, NJ, June 2017.

115. T. B. Rawal, T. Jiang, D. Le, P. Dowben, and T. S. Rahman, "Electronic Structure and Catalytic Properties of Au/h-BN Composite System", American Vacuum Society Meeting, Tampa, FL, November 2017.

116. D. Le, Z. Hooshmand, T. B. Rawal, H. K. Jeong, P. Evans, P. A. Dowben and T. S. Rahman, “Methoxy Formation Induced Defects On Mos_2,” 2018 FLAVS Symposium, Orlando, FL, May 7-8, 2018.

117. Shree Ram Acharya, Volodymyr Turkowski, and Talat S. Rahman, “ Electronic correlation and quantum memory effects in the ultrafast laser induced charge and spin dynamics in bulk Ni”, APS March Meeting, Los Angeles, CA, March 2018.

118. Sampyo Hong, Takat Rawal, Shree Ram Acharya, and Talat S. Rahman, “High catalytic activity of singly distributed Pd_1/ZnO ($10\bar{1}0$) toward methanol partial oxidation: A DFT based kinetic Monte Carlo study”, APS March Meeting, Los Angeles, CA, March 2018.

119. S. K. Cushing, B. M. Marsh, M. E. Vaida, L. M. Carneiro, I. Porter, A. Lee, S. R. Leone, "*Photoexcited Carriers, Phonons, and their Scattering Measured in Semiconductor Junctions by Transient Extreme Ultraviolet*", 2017 IEEE Photovoltaic Specialists Conference, Washington DC, June 2017.

Book Chapters by In-Unit Physics Faculty (4)

1. J. E. Colwell, J. Blum, R. Clark, S. Kempf and R. Nelson 2018. "*Laboratory Studies of Planetary Ring Systems*". In: *Planetary Ring Systems* (M. S. Tiscareno and C. D. Murray, Eds.) Cambridge University Press. April 2018.

2. S. A. Tatulian and N. Kandel, "*Membrane Pore Formation by Peptides Studied by Fluorescence Techniques*". In: *Lipid-Protein Interactions* (J. H. Kleinschmidt, Ed.), Springer (invited chapter).

3. S. A. Tatulian, "*FTIR Analysis of Proteins and Protein-Membrane Interactions*". In: Lipid-Protein Interactions (Kleinschmidt JH, ed.), Springer (invited chapter).

4. S. Stolbov and M. Alcantara Ortigoza, "*Rational Catalyst Design Methodologies: Principles and Factors Affecting the Catalyst Design*". In *Electrocatalysts for Low Temperature Fuel Cells - Fundamentals and Recent Trends.* (T. Maiyalagan and V. S. Saji, Eds.) Wiley-VCH. May 2017.

Other Publications by In-Unit Physics Faculty (10)

1. D. Morate, J. de Leon, M. de Pra, J. Licandro, A. Cabrera-Lavers, H. Campins, N. Pinilla-Alonso, "*Visible and Near-infrared Online Data Catalog: Sulamitis and Clarissa asteroids spectra*", On-line Data Catalog: J/A+A/610/A25 (2018).

2. N. Pinilla-Alonso, J. de León, D. Morate, M. de Prá, V. Lorenzi, J. Licandro, H. Campins, V. Ali-Lagoa, "*PRIMitive Asteroids Spectroscopic Survey - PRIMASS: Current Status*", American Astronomical Society, DPS meeting #49, October, 2017.

3. J. E. Colwell, "*Cassini's Grand Finale*", Physics World **30** (9), 25 (2017).

4. R. W. Parkinson, C. Craft, R. DeLaune, J. F. Donoghue, M. Kearney, J. F. Meeder, R. E. Turner. Correspondence regarding M. L. Kirwan, S. Temmerman, E. E. Skeehan, G. R. Guntenspergen, and S. Fagherazzi, "*Overestimation of marsh vulnerability to sea level rise*", Nature Climate Change, **6** (3):253-260 (2016): Nature Climate Change, **7** (11): 756-757 (2017).

5. C. Efthimiou, "*Investigation of Skyscraper's Feat*" (original version with an addendum), arXiv:1805.09643.

6. H. A. Weaver, B. T. Bolin, Y. R. Fernandez, J. Moeyens, R. McMillan, W. H. Ryan, E. V. Ryan, T. Lister, S. Greenstreet, E. Gomez, J. Chatelain, G. V. Williams, "*Minor Planet Electronic Circular 2017-V01*". This is an announcement to the community providing astrometry of an asteroid observed by the authors.

7. J. M. Bauer, T. Grav, Y. R. Fernandez, A. K. Mainzer, E. A. Kramer, J. R. Masiero, T. Spahr, C. R. Nugent, R. A. Stevenson, K. J. Meech, R. M. Cutri, C. M. Lisse, R. Walker, J. W. Dailey, J. Rosser, P. Krings, K.

Ruecker, E. L. Wright, "*VizieR Online Data Catalog: WISE/NEOWISE observations of comets*" (2017). This is an archive of data associated with the published paper.

8. M. M Montgomery, lead author, "*Emerging Tools and Applications of Virtual Reality in Education*, Eds. D. H. Choi, A. Dailey-Hebert, and J. Simmons Estes. E-book and international publication hard copy (ISI Global Publishing, 2018).

9. M-E. Boulanger, F. Laliberté, M. Dion, S. Badoux, N. Doiron-Leyraud, W.A. Phelan, S.M. Koohpayeh, W.T. Fuhrman, J.R. Chamorro, T.M. McQueen, X. Wang, Y. Nakajima, T. Metz, J. Paglione, and L. Taillefer, "*Field-dependent heat transport in the Kondo insulator SmB6 : phonons scattered by magnetic impurities*", arXiv:1709.10456 (preprint, 2017).

10. B.-J. Niebuur, K.-L. Claude, S. Pinzek, C. Cariker, K. N. Raftopoulos, V. Pipich, M.-S. Appavou, A. Schulte, C. M. Papadakis. "*Pressure-dependence of Poly(N-isopropylacrylamide) mesoglobule formation in aqueous solution*", Annual report, Chair of functional materials, Physics Department, TU Munich, Germany, 2017.

Invited Presentations by In-Unit Physics Faculty (115)

L. Argenti (4):

1. "*Attosecond Interferometric Spectroscopy of Resonant Transitions*", Workshop on Trends in Ultrafast Laser Science, August, 2017, University of Colorado, Boulder, CO.

2. "*Attosecond Interferometric Spectroscopy of Resonant Transitions*", 48th Winter Colloquium on the Physics of Quantum Electronics, January, 2017, Snowbird, UT.

3. "*A new time-dependent ab-initio close-coupling program for atomic ionization*", workshop on Developing Flexible and Robust Software in Computational Atomic and Molecular Physics, May 2018, Institute for Theoretical Atomic, Molecular, and Optical Physics, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA.

4. "*Attosecond studies of electronic concerted motion in atoms: an ab initio perspective*", April 2018, Seminar at the University of Nebraska, Lincoln, NE.

D. Britt (17):

5. "*Carbon in Meteorites*", Workshop on Carbon in the Solar System, April 2018.

6. "*UCF/DSI Asteroid Regolith Simulants*", ASCE Earth and Space Conference, April 2018.

7. "*Phobos Simulants for MMX Mission*", ASCE Earth and Space Conference, April 2018.

8. "*Asteroid ISRU*", University of Peking, Beijing, China, September, 2017.

9. "*What do We Know About Asteroid Regoliths?*", University of Peking, Beijing, China, September, 2017.

10. "*Asteroid ISRU*", School of Earth Sciences, China University of Geosciences, Wuhan, China, September, 2017.

11. "*What do We Know About Asteroid Regoliths?*", China University of Geosciences, Wuhan, China, September, 2017.

12. "*What can be Learned from Asteroid Remote Sensing?*", China University of Geosciences, Wuhan, China, September, 2017.

13. "*The Strength Characteristics of (Very) Small Asteroids*", China University of Geosciences, Wuhan, China, September, 2017

14. "*The Asteroid-Meteorite Spectral Links*", China University of Geosciences, Wuhan, China, September, 2017.

15. "*Economics and Exploration: A Bit of Historical Perspective*", China University of Geoscience, Wuhan, China, September, 2017.

16. "*Asteroid ISRU*". School of Mechatronics Engineering, Harbin Institute of Technology (Harbin). January, 2018.

17. "*What do We Know About Asteroid Regoliths?*", School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China, January, 2018.

18. "*What can be Learned from Asteroid Remote Sensing?*", School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China, January, 2018.

19. "*The Strength Characteristics of (Very) Small Asteroids*", School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China, January, 2018.

20. "*The Asteroid-Meteorite Spectral Links*", School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China, January, 2018.

21. "*Economics and Exploration: A Bit of Historical Perspective*", School of Mechatronics Engineering, Harbin Institute of Technology, Harbin, China, January, 2018.

<u>H. Campins (5):</u>

22. "*Spectral Diversity Among Primitive Asteroids: Inner Belt Families*", Asteroid Science Intersections with Mine Engineering, Belval, Luxembourg, April, 2018.

23. "*Spectral Diversity Among Primitive Asteroids: Implications for Origins of Bennu and Ryugu*", Multi-scale Planetary Science Workshop, Paris Observatory, France, June, 2017.

24. "*NASA's OSIRIS-REx, Asteroid Sample Return Mission, Exploring our Past, Securing our Future*", Kennedy Space Center, FL, June, 2017.

25. "*Spectral Diversity Among Primitive Asteroids: Implications for Origins of Bennu and Ryugu*", OSIRIS-REx Spectroscopic Analysis Working Group, March, 2018.

26. "*NASA's OSIRIS-REx, Asteroid Sample Return Mission, Exploring our Past, Securing our Future*", LIFE@UCF, September, 2017.

Z. Chang (16):

27. "*New Generation MIR Lasers for Pushing the Frontiers of Attosecond Physics*", MIR MURI Review, May, 2018, Arlington, VA.

28. "*Attosecond X-rays Reached the Water Window*", International Symposium on Advanced Photonics 2018, Hamamatsu, Japan, April, 2018.

29. "*Attosecond X-rays reach the water window*", The 10th Asian Symposium on Intense Laser Science (ASILS10), American University of Sharjah, United Arab Emirates. March, 2018.

30. "*Attosecond transient absorption near the water window*", Workshop on CXFEL, Arizona State University, Tempe, AZ, February, 2018.

31. "*Isolated attosecond X-ray pulses reaches the water window*", Conference on high intensity lasers and attosecond science in Israel, Tel-Aviv, December, 2017.

32. "*53-as X-rays reach carbon K-edge*", Joint MURI review meeting, November,017, Columbus, OH.

33. *"*Probing electron dynamics with Water Window X-rays", Joint MURI review meeting, November, 2017, Columbus, OH.

34. "*MIR driven attosecond sources and other new developments in attosecond research*", Ultrafast Optics XI, Jackson Hole, WY, October, 2017.

35. "*High-energy CEP-stable Few-cycle Mid-IR Pulses for Generating Attosecond Sub-keV X-ray*", IEEE Photonics Conference, October, 2017, Lake Buena Vista, Florida.

36. "*Attosecond X-rays generated with intense, few-cycle MIR lasers (Plenary Presentation)*", SPIE Laser Damage, September, 2017, Boulder, CO.

37. "*New Generation Attosecond X-ray Light Sources*", The 2017 Frontiers in Optics + Laser Science (FIO + LS) conference, September2017, Washington DC.

38. "*Attosecond Soft X-rays in the Water Window*", The 30th International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC XXX), July, 2017, Cairns, Australia.

39. "*Intense XUV pulse generation with CEP stable 10 Hz lasers*", Intense field- Short Wavelength Atomic and Molecular Processes (ISWAMP)-4, July, 2017, Brisbane, Australia.

40. "*New Generation Attosecond Light Sources*", 48th DAMOP (APS Division of Atomic, Molecular and Optical Physics), Sacramento, CA, June, 2017.

41. "*SC439: Attosecond Optics*", short course, CLEO (Conference on Lasers and Electro-Optics), San Jose, California, May, 2017.

42. "*Attosecond science: Progress to date and future prospects*", Northwest University, Jianzhong Yang seminar, December, 2017.

B. Chen (4):

43. *"Structural characterization of the Rous sarcoma virus capsid protein in its tubular assembly", 2018 IVAN ENCconference users meeting*, Orlando, FL, April, 2018.

44. *"Structural characterization of the Rous sarcoma virus capsid protein in its tubular assembly", 2018 FAME*, TAMPA, FL, May, 2018.

45. *"Solid state NMR study of biomolecular and condensed matter materials",* January, 2018, Department of Physics, Shanghai Key Lab of Magnetic Resonance, East China Normal University, Shanghai, China.

46. *"Structural model of the tubular assembly of Rous sarcoma virus capsid protein",* December, 2017, Beihang University Vision Forum for International Young Scholars, Beijing, China.

Z. Chen (3):

45. "*How might online learning technology (finally) change teaching and learning?*", Colloquium, Department of Physics University of Pittsburgh. March, 2018.

46. "*How will online learning change the future of STEM courses?*", Department of Physics University of Pittsburgh. March, 2018.

47. "*How might online learning technology (finally) change teaching and learning?*", UCF Marchioli Collective Impact Award Seminar Series on Scalable Instructional Technologies, April 2018.

L. Chernyak (2):

48. "*Electron Injection-Induced Effects in Wide and Narrow Band Gap Semiconductors*", Electronic Materials: From Solar Cells to Proteins. In Honor of David Cahen's 70th Birthday. Weizmann Institute of Science, Rehovot, Israel, May, 2018.

49. "*Impact of electron injection on fundamental properties of narrow band gap semiconductors*", Israel Institute of Technology, Haifa, February 2018.

J. Chini (4):

50. "*Learning from Avatars: Developing Student-centered Teaching Skills in a Mixed-reality Simulator*", APS April Meeting, Columbus, OH, 2018.

51. "*Universal Design: Making Postsecondary STEM Accessible to All Students*", Physics Education Research Conference, Cincinnati, OH, July, 2017.

52. "*Enhancing Professional Development with a Mixed-Reality Classroom Simulator to Prepare Teaching Assistants for Active Learning Instruction*", Virtual Worlds Education Conference, June, 2017, Melbourne, FL.

53. "*Supporting All Students in Evidence-based STEM Courses with Universal Design for Learning*", Michigan State University, East Lansing, MI, November 2017.

M. Chini (3):

54. "*Solid-state high-order harmonics driven by long-wavelength lasers*", SPIE Ultrafast Bandgap Photonics III Conference, Orlando, FL, 2018.

55. "*High-order harmonic and attosecond spectroscopy in atoms, molecules, and solids*" (Lecture), High Energy Density Physics Summer School, National University of Defense Technology, Changsha, China, 2017.

56. "*Solid-State High-order Harmonic Sources & Spectroscopy*", Center for Integrated Nanotechnologies, Los Alamos National Laboratory, Los Alamos, NM, 2017.

J. Colwell (1):

57. "*Running Rings Around Saturn*", Southwest Research Institute, San Antonio TX, October, 2017.

E. del Barco (1):

58. "*A molecular double-quantum dot*", Symposium: Progress and Challenges in Molecular Electronics, ICMAT 2017, June, Singapore, 2017.

X. Feng (4):

59. "*Producing oxygen and fuels from carbon dioxide on Mars: A chemical view*", CLASS Seminar, Florida Space Institute, UCF, February 2018, Orlando, FL.

60. "*Rational design of metal electrocatalysts for renewable energy conversion*", UCF Chemistry Department Seminar, April 2018, Orlando, FL.

61. "*Grain boundary effect in electrochemical catalysis*", Dalian Institute of Chemical Physics, Chinese Academy of Sciences, August 2017, Dalian, China.

62. "*Grain boundary effect in electrochemical catalysis*", Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, September 2017, Changchun, China.

Y. Fernandez (2):

63. "*A New Perspective on Comets*", National Astronomy Teaching Summit, August, 2017, Fort Myers, FL.

64. "*Ensemble Physical Properties of Cometary Nuclei*", CLASS Seminar, Florida Space Institute, UCF, September, 2017.

E. Flitsiyan (3):

65. "*Research Based Instructional Strategy in Physic Lab Courses at UCF*", Cottrell Scholars National Teaching Assistant Workshop, May 2017, Georgia Tech, Atlanta, GA.

66. "*A Service-Learning Component in Introductory Physics Course – Increasing Enrollment in STEM*", Florida AAPT Conference, November 2017, Orlando, FL.

67. "*Mix-Mode technology in introductory physics labs*", Sunshine State Teaching and Learning Conference, St. Petersburg, FL, February 2018.

68. "Wide and ultra-wide bandgap oxides", Honors Seminars Series, Seminole State College, Lake Mary, FL, March, 2018.

69. Jonathan Lee, Elena Flitsiyan, Leonid Chernyak "Ultraviolet Recombination Dynamics in β-Ga_2O_3 by Time-Resolved Cathodoluminescence", 15th International Conference on Methods and Applications in Fluorescence, Bruges, Belgium, September 10 – 13, 2017.

M. Ishigami (3):

70. "*Lubricity of gold nanocrystals on graphene*", Annual Meeting of the Society of Tribologists and Lubrication Engineers, May, 2017.

71. "*Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes*", *Workshop on defects in carbon nanotubes,* Telluride, CO, July 2017.

72. "*Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes*", Naval Research Laboratory, January, 2018.

W. Kaden (2):

73. "*Model Mineral Surfaces for Bombardment Studies*", NASA SSERVI REVEALS Kickoff Meeting, Georgia Institute of Technology, Atlanta, GA, August, 2017.

74. "*Electron-mediated silica hydroxylation – an accidental template for Planetary Science Research*", 2018 FLAVS Symposium, Orlando, FL, May 2018.

A. Kara (1):

75. "*Organic materials/metal surfaces Interface Characteristics:Role of van der Waals interactions*", University of Catania, Italy, June, 2017

R. Klemm (4):

76. "*Terahertz emission from the intrinsic Josephson junctions of high-symmetry thermally-managed Bi2Sr2CaCu2O8+δmicrostrip antennas*", Vortex 2017, Natal, Brazil, May, 2017.

77. "*Terahertz emission from the intrinsic Josephson junctions of high-symmetry thermally-managed Bi2Sr2CaCu2O8+δmicrostrip antennas*", CEC-ICMC-2017 Madison, WI July 10, 2017.

78. "*Terahertz emission from the intrinsic Josephson junctions of high- symmetry thermally-managed Bi2Sr2CaCu2O8+δmicrostrip antennas*", EAM-ELEC-S11-014-2018, Orlando, FL, January 2018.

79. "*Terahertz emission from the intrinsic Josephson junctions of high-symmetry thermally-managed* Bi2Sr2CaCu2O8+δ*microstrip antennas*", colloquium, Cavendish Laboratory, University of Cambridge, Cambridge, UK, June, 2017.

V. Kokoouline (2):

80. "*Photodetachment and radiative electron attachment to molecules of astrophysical interest*", workshop Hydride Chemistry: From Earth to Space, Telluride, CO, March, 2018.

81. "*Spectroscopic and dynamical properties of the ozone molecule in the dissociation region*", The 4th international conference on ozone, Reims, France, October, 2017.

D. Le (1):

82. "*Role of the interface in activating single-layer MoS2*", Penn Conference in Theoretical Chemistry, Philadelphia, PA, August, 2017.

M. Montgomery (1):

83. "*The Role of Accretion Disks in Non-Magnetic CVs and Connections with Transient Jets*", European Week of Astronomy and Space Science, Prague, Czech Republic, August, 2017.

E. Mucciolo (1):

84. "*New Developments and Ideas at the Interface between Physics and Computer Science*", colloquium, Department of Physics, Florida State University, Tallahassee, FL, October, 2017.

Y. Nakajima (1):

85. "*Chiral edge transport in topological Kondo insulator SmB6*", International Conference on Strongly Correlated Electron Systems, Prague, the Czech Republic, July 2017.

M. Neupane (6):

86. "*Photoemission investigation of topological insulators*", Georgia Tech, Atlanta, GA, March 2018.

87. "*Photoemission Studies of Topological Superconducting Materials*", APS March Meeting, Los Angeles, CA, 2018.

88. "*Experimental Realization of Topological insulators and beyond*", University of South Florida, Tampa FL, January, 2018.

89. "*Experimental Realization of Weyl Semimetal*", Advances in Dirac and Weyl Materials, University of North Florida, Jacksonville, FL, December 2017.

90. "*One way motion electron in a superhighway*", Physics Colloquium talk at University of Montréal, Montréal, Canada, November 2017.

91. "*Experimental realization of Weyl semimetal*", Physics Colloquium talk at University of Arkansas, Fayetteville, AR, August 2017.

R. Peale (5):

92. "*Enhancement of infrared detection using sub-wavelength and nanoscale metal structures*", 3rd Nanolithography Workshop and Terahertz Conference, San Luis Potosi, Mexico, November 2017.

93. "*Long-wave and mid-wave infrared micro-bolometers with gold black or wavelength-selective absorbers*", Image Sensing Technologies: Materials, Devices, Systems, and Applications V, SPIE Commercial + Scientific Sensing and Imaging, Orlando, FL, April 2018.

94. "*Mitigation of radiation damage in GaSb/InAs Type II Strained-Layer-Superlattice infrared detectors*", Ohio State University, Columbus OH, January 2018.

95. "*Plasmonic resonant absorbers with dispersive dielectrics and Scene generator based on variable attenuation by excitation of electrodynamic surface waves*", AFRL Wright Patterson AFB OH, January 2018.

96. "*Scene generator based on variable attenuation by excitation of electrodynamic surface waves*", Eglin AFB, February 2018.

T. Rahman (17):

97. "*Manipulating properties of 2D materials: old stuff with new promises*", Condensed Matter Physics Seminar, University of California, Davis, CA, April, 2018.

98. "*Multiple excitations, excited states, and ultrafast charge dynamics in functional materials: insights from TDDFT+DMFT*", Molecular Foundry Seminar, Lawrence Berkeley National Laboratory, CA, April, 2018.

99. "*Tuning 2D materials MoS2 and h-BN for hydrogenation reactions*", 255thAnnual ACS Meeting, New Orleans, March, 2018.

100. "*Supported Au nanoparticles: good for methanol decomposition or formation?*", American Physical Society March Meeting, Los Angeles, CA 2018.

101. "*2D Materials: old stuff, new promises, and my Miller time*", Miller Institute Lunch Talk, University of California Berkeley, Berkeley, CA, February, 2018.

102. "*Nanomaterial pursuit 2018: Inclusive or exclusive?*", Conference for Undergraduate Women in Physics, University of North Florida, Jacksonville, FL, January, 2018.

103. "*Towards multi-scale modeling of thin film growth processes*", Fall Meeting of Materials Research Society, Boston, November, 2017.

104. "*Tailoring Chemical & Optical Properties of 2D Materials*", Chemical Physics Department Annual Workshop, Fritz Haber Institute, Doellensee, Germanry, September, 2017.

105. "*Rational Material Design for Energy Needs: theory and experiment working in tandem*", Karachi University, Pakistan, August, 2017.

106. "*Rational Material Design for Energy Needs: Follow up Workshop*", COMSATS Institute for Information Technology, Islamabad, Pakistan, August, 2017.

107. "*Manipulating Chemical Reactivity of MoS_2 and other 2D Materials*", Telluride Workshop on Computational Chemistry, August, 2017, Telluride, CO.

108. "*Pt-Dipyridyl Tetrazine metal-organic network on Au(100): Insights from first principles calculations*", Faraday Society Discussions on Complex Molecular Surfaces and Interfaces, Sheffield, UK, July, 2017.

109. "*2D Transition Metal Dichalcogenides: old materials with new promises*", Gesselschaft Deutscher Chemiker (GdCH) Colloquium, Ruhr University Bochum, Germany, July, 2017.

110. "*Tailoring optical & chemical properties of 2D transition metal dichalcogenides*", Summer School on Surfaces & Interfaces, San Sebastian, Spain, June, 2017.

111. "*2D Transition Metal Dichalcogenides: old materials with new promises*", Center for Nanoscience, Universitat Autonoma Barcelona, Spain, June, 2017.

112. "*Rational Design of Functional Nanomaterials : Theory and Experiment working in Tandem*", 2 invited lectures, Workshop on Rational Material Design, COMSTECH, Islamabad, Pakistan May, 2017.

113. "*Tuning chemical reactivity of MoS2 and other 2D materials*", Department of Chemistry and Chemical Engineering Seminar, Aalto University, Finland, May, 2017.

A. Schulte (1):

114. "*Spectroscopic approaches to stimuli-responsive polymers at variable temperature and pressure*", Polymer Seminar, Physics Department, TU Munich, Germany, June 27, 2017

V. Turkowski (2):

115. "*Excitations and ultrafast dynamics of charge carriers in 2D transition metal dichalcogenides*", Joint Nanoscience and Neutron Scattering Users Meeting, Oak Ridge National Laboratory (Oak Ridge, TN, July 31, 2017).

116. "*Excitations and ultrafast charge dynamics in strongly correlated materials: TDDFT+DMFT analysis*", Department of Chemistry, UC-Berkeley (Stephen Leone group, April 17, 2018).

Patents Awarded by In-Unit Physics Faculty (3)

1. Z. Chang, Y. Wu, E. Cunningham, "*Apparatus and method for suppressing parasitic lasing and applications thereof*", US Patent 9,899,798, Awarded on February 20, 2018.

2. R. E. Peale, A. V. Muraviev, P. Figueiredo , "*Surface-emitting ring-cavity quantum cascade laser with ring-shaped phase shifter and related methods*", US Patent 9,819,150. Awarded on November 14, 2017.

3. D. L. Graybeal, A. C. Rogers, A. Muraviev, C. M. Carnifax, R. E. Peale, "*Spectroscopy system using waveguide and employing a laser medium as its own emissions detector*", US Patent 9,851,248 B2. Awarded on December 16, 2017.

Disclosures and Patent Applications by In-Unit Physics Faculty (3)

1. L. Chernyak, R. E. Peale, C. J. Fredricksen, J. Lee, "*Radiation-Defect Mitigation In INAS/GASB Strained-Layer Superlattice Infrared Detectors and Related Methods*", provisional US patent No. 62/623,132, filed on January 29, 2018.

2. T. Kashiwagi, K. Kadowaki, H. Minami, R. A. Klemm, "*Terahertz Band Electromagnetic Wave Oscillation Element and Terahertz Band Electrodynamic Wave Oscillation Device*". Japanese patent application no. 2015-122057.

3. C. Chamon, E. Mucciolo, "*Techniques for Securely Executing Code that Operates on Encrypted Data on a Public Computer*", provisional US patent No. 62/607,185, filed on December 18, 2017.

External Funding May 8, 2017 – May 7, 2018 (US $)

Faculty Member	New Funding	Expenditures
Luca Argenti	44,931.51	26,982.14
Chris Bennett	4,805.20	3,968.38
Aniket Bhattacharya	19,822.40	13,363.02
Richard Blair	224,965.40	121,292.14
Julie Brisset	11,340.00	69,186.68
Daniel Britt	409,180.64	681,753.21
Humberto Campins	420,380.00	136,870.00
Zenghu Chang	1,688,543.19	1,362,084.10
Bo Chen	10,000.00	8,590.75
Leonid Chernyak	27,605.00	26,729.07
Jackie Chini	557,616.60	84,366.39
Mike Chini	120,385.00	107,069.95
Josh Colwell	223,194.16	457,520.52
James Cooney	11,375.80	3,304.06
Enrique Del Barco	135,624.00	144,724.46
Joseph Donoghue	-	34,870.49
Addie Dove	219,619.00	268,315.09
Yan Fernandez	552,608.10	414,240.34
Elena Flitsiyan	18,659.00	8,282.16
Joseph Harrington	50,000.00	184,944.93
Masa Ishigami	-	1,000.00
Bill Kaden	178,745.25	26,688.39
Abdelkader Kara	90,725.00	138,488.99
Viatcheslav Kokoouline	75,000.00	64,697.25
Adam LaMee	800.00	800.00
Eduardo Mucciolo	62,912.55	60,363.42
Madhab Neupane	174,230.00	63,416.69
Robert Peale	39,996.00	71,080.16
Talat Rahman	551,517.79	858,458.94
Beatriz Roldan	-	85,157.57
Suren Tatulian	185,396.80	91,005.80
TOTALS:	$6,109,978.39	$5,619,615.09

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

	2013 – 2014	2014 – 2015	2015 – 2016	2016 – 2017	2017-2018
New Funding	$5,633,054.42	$5,902,456.15	$5,742,883.19	$5,694,593.51	$6,109,978.39
Expenditures	$4,625,991.68	$5,864,749.18	$6,764,007.75	$5,447,730.42	$5,619,615.09

5. Awards

Faculty

Daniel Britt – UCF Pegasus Professor Award (April 2018)

Daniel Britt – UCF Research Incentive Award (February 2018)

Joshua Colwell – UCF Teaching Incentive Award (April 2018)

Elena Flitsiyan – UC Teaching Incentive Award (April 2018)

Christopher Bennett – UCF Advancement of Early Career Researchers Award (VPR-AECR)

Xiaofeng Feng – UCF Advancement of Early Career Researchers Award (VPR-AECR)

Abdelkader Kara – UCF Research Incentive Award (February 2018)

Eduardo Mucciolo – Fellow of the American Physical Society (October 2017)

Enrique Del Barco – Fellow of the American Physical Society (October 2017)

Robert Peale – Inducted into the National Academy of Inventors, Florida Chapter (November 2017)

Talat Rahman – Miller Fellowship, University of California at Berkeley (Spring 2018).

Zenghu Chang – UCF Luminary Award (October 2017)

Staff

Esperanza Soto – UCF College of Science Staff USPS Award (February 2018)

Jessica Brooks – UCF College of Science Staff USPS Award (February 2018)

Students

Daniel Franklin – UCF Order of Pegasus (April 2018)

Kathleen McIntyre – College of Science Excellence by a graduate student teaching assistant (April 2018***)***

KAM Hasan Siddiquee – UCF Graduate Studies Doctoral Research Support Award (2017)

Zahra Hooshmand Gharebagh – College of Sciences General Scholarship Award (October 2017)