



UNIVERSITY OF CENTRAL FLORIDA

Department of Physics Annual Productivity Report Academic Year 2016 – 2017

June 24, 2017

1. Undergraduate Program

Undergraduate Student Credit Hours Generated in 2016-2017

COURSES	TOTAL SCH
All	36,271

Summer 2016 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Velissaris, Cooney	258
PHY 2048	General Physics using Calculus I	Flitsiyan	504
PHY 2049	General Physics using Calculus II	Stolbov, Chernyak	472
PHY 2053	Algebra-based Physics I	Bhattacharya, Velissaris	716
PHY 2054	Algebra-based Physics II	Al-Rawi	436
PSC 1121	Physical Sciences	Efthimiou, Brueckner	113
PHY 3905	Independent Study	Cooney	6
PHY 4912	Directed Independent Research	<i>various</i>	28
TOTAL:			2,533

Fall 2016 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Cooney, Montgomery, Britt, Soileau	2916
AST 4142	Asteroids, Comets, and Meteorites	Campins	18
AST 4700	Exp. Methods in Astronomy	Fernandez	54
AST 4762	Astronomical Data Analysis	Harrington	27
GLY 2038		Donoghue	63
PHY 1931	Freshman Physics Seminar	Al-Rawi	11
PHY 2020	Concepts of Physics	M. Chini	270
PHY 2048	General Physics using Calculus I	Velissaris, Z. Chen, Cooney, Luo, Neupane, Flitsiyan	2860
PHY 2049	General Physics using Calculus II	del Barco, Efthimiou, Bindell, Al-Rawi, Balaeff	2484
PHY 2053	Algebra-based Physics I	Colwell, Tatulian, Kara, B. Chen, Bhattacharya	2988
PHY 2054	Algebra-based Physics II	Dubey, Khondaker, Kaden, Saha	2788
PHY 3101	General Physics using Calculus III	Dubey, Flitsiyan	525
PHY 3220	Mechanics I	Argenti	99
PHY 3323	Electricity and Magnetism I	Chow	144
PHY 3513	Thermal and Statistical Physics	Schelling	81
PHY 3722	Physics Laboratory-Electronics	Velissaris	36

PHY 3802	Intermediate Physics Laboratory	Bennett, Feng	23
PHY 3945	Physics Pedagogy Seminar	LaMee	12
PHY 4604	Wave Mechanics I	Klemm	75
PSC 1121	Physical Sciences	Brueckner	1686
PHY 4903	Honors Directed Reading I	Klemm, Cooney	6
PHY 4912	Directed Independent Research	<i>various</i>	24
TOTAL:			17,190

Spring 2017 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 2002	Astronomy	Cooney, Fernandez, Montgomery, Campins	2565
AST 2037	Life in the Universe	Montgomery	114
AST 4152	Planetary Geophysics	Britt	60
GLY 2038	Environmental Geoscience	Donoghue	72
PHY 1931	Freshman Physics Seminar	Al-Rawi	1
PHY 2020	Concepts of Physics	J. Chini	267
PHY 2048	General Physics using Calculus I	del Barco, Efthimiou, Luo, Cooney, Neupane, Velissaris	3080
PHY 2049	General Physics using Calculus II	Velissaris, M. Chini, Bindell, Al-Rawi, Balaeff	2112
PHY 2053	College Physics I	Dubey, Tatulian, Kaden, B. Chen	3052
PHY 2054	College Physics II	Colwell, Khondaker, Dove, Saha	3044
PHY 3101	General Physics using Calculus III	Schulte, Dubey, Flitsiyan	522
PHY 3220	Mechanics I	Schelling	84
PHY 3752	Physics of Scientific Instruments	Velissaris	48
PHY 3802	Intermediate Physics Laboratory	Ishigami	45
PHY 3930	Introd. Numerical Computing	Harrington	81
PHY 3945	Physics Pedagogy Seminar	Wilcox, Wesley	11
PHY 4012	Teaching Introductory Physics	J. Chini	30
PHY 4324	Electricity and Magnetism II	Chow	108
PHY 4605	Wave Mechanics II	Klemm	60
PHY 4803	Advanced Physics Laboratory	Chernyak	30
PHY 4903	Honors Directed Reading I	Argenti, Mucciolo	7
PHY 4904	Honors Directed Reading II	Klemm	3
PHY 4970	Honors Thesis	Cooney	3
PHZ 3113	Intro. Theor. Methods in Physics	Klemm	141
PHZ 3464	Nanoscience II	del Barco	15
PHZ 3601	Theory of Relativity	Efthimiou	18
PHZ 4404	Solid State Physics	Chow	24
PSC 1121	Physical Science	Brueckner	915
PHY 4912	Directed Independent Research	<i>various</i>	36
TOTAL:			16,548

Physics B.S. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2012-2013	171	172
2013-2014	176	168
2014-2015	169	155
2015-2016	161	158
2016-2017	182	177

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

Academic Year	Summer	Fall	Spring	Total
2012-2013	4	5	13	22
2013-2014	2	7	19	28
2014-2015	3	5	18	26
2015-2016	2	5	15	22
2016-2017	1	4	18	23

Physics Undergraduate Minor Degrees Awarded in the Last Five Years

Academic Year	Summer	Fall	Spring	Total
2012-2013	-	3	4	7
2013-2014	-	3	4	7
2014-2015	-	2	5	7
2015-2016	1	2	3	6
2016-2017	-	4	9	13

Physics Honors in the Major Theses

2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
1	1	3	3	1

B.S. Degree Graduates in 2016-2017(24 in total)

Summer 2016	Fall 2016	Spring 2017		
David Gorlin	Madeline Davis	Seamus Anderson	Johnnie Green	Renjie Ma
	Paul Kutch	Michael Antia	Ian Harmon	Daniel Segal
	Stephanie Navarro	Eric Apfel	Idris Kennedy	Alexander Stanforth
	Dalibor Todorovski	Jeremy Coffman	Max Koopman	Nathaniel Tukdarian
		Chelsea Decelles	Jeffrey Jorges	Luther Wang
		Justin Garland	Vanessa Lowry	Qing Wang
				Valentina Zaffino

2. Graduate Program

Graduate Student Credit Hours Generated in 2016-2017

COURSES	TOTAL SCH
All	1614

Summer 2016 Course Offering

Course Number	Course Title	Instructors	Total SCH
PHY 5817L	Building Physics Apparatus	Kaden	8
PHY/AST 6918 (44 sections)	Directed Research	various	253
PHY/AST 6908 (2 sections)	Independent Study	various	9
PHY/AST 7980 (61 sections)	Doctoral Dissertation	various	91
TOTAL:			361

Fall 2016 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 5145	Advanced Asteroids Comets & Meteor	Campins	24
AST 5263	Advanced Observational Astronomy	Fernandez	15
AST 5765C	Advanced Astronomical Data Analysis	Harrington	12
PHY 5346	Electrodynamics I	Peale	69
PHY 5606	Quantum Mechanics I	Schulte	75
PHY 6246	Classical Mechanics	Shivamoggi	66
PHY 6938	Special Topics	Peale	6
PHY/AST 6908	Independent Study	various	3
PHY/AST 6918	Directed Research	various	234
PHY/AST 7980	Doctoral Dissertation	various	88
PHZ 6420	First Principles Computational Methods	Stolbov	27
PHZ 6426	Condensed Matter Physics I	Leuenberger	39
TOTAL:			658

Spring 2017 Course Offering

Course Number	Course Title	Instructors	Total SCH
AST 5154	Advanced Planetary Geophysics	Britt	18
AST 6156	Planetary Seminar	Britt	18
PHY 5524	Statistical Physics	Bhattacharya	57
PHY 5937	Special Topics	Peale	27
PHY 6347	Electrodynamics II	Peale	69
PHY 6624	Quantum Mechanics II	Schulte	60

PHY/AST 6908 (4 sections)	Independent Study	various	9
PHY/AST 6918 (32 sections)	Directed Research	various	201
PHY/AST 7980 (36 sections)	Doctoral Dissertation	various	109
PHZ 5156	Computational Physics	Stolbov	18
PHZ 6428	Condensed Matter Physics II	Leuenberger	9
TOTAL:			595

Physics M.S. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2012-2013	2	2
2013-2014	3	2
2014-2015	1	1
2015-2016	5	5
2016-2017	5	5

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

Academic Year	Summer	Fall	Spring	Total
2012-2013	2	7	5	14
2013-2014	3	4	4	11
2014-2015	4	-	-	4
2015-2016	2	6	4	12
2016-2017	4	2	4	10

M.S. Degree Graduates 2016-2017 (10 in total)

Summer 2016	Fall 2016	Spring 2017
Tommy Boykin	William Richardson	Danielle Reyes
Rebecca Cebulka	Matthew Wilcox	Zenaib Sanjabieznaveh
Asim Khaniya		Naseem Ud Din
Walter Malone		Brian Zamarripa Roman

Physics Ph.D. Applications in the Last Five Years

Starting Term	Applied	Accepted	Enrolled
Fall 2012	94	29	11
Fall 2013	122	33	10
Fall 2014	118	40	21
Fall 2015	141	47	19
Fall 2016	149	26	23
Fall 2017	133	18	18 (expected)

Physics Ph.D. Enrollment in the Last Five Years

Academic Year	Fall	Spring
2012-2013	90	84
2013-2014	84	84
2014-2015	94	88
2015-2016	93	82
2016-2017	92	88

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

Academic Year	Summer	Fall	Spring	Total
2012-2013	-	7	2	9
2013-2014	5	2	2	9
2014-2015	5	7	9	21
2015-2016	4	9	4	17
2016-2017	4	3	7	14

Physics Ph.D. Graduates 2016-2017 (14 in total)

Summer 2016

- **Mahdi Ahmadi**, *Size, Shape, Composition and Chemical State Effects in Nanocatalysis*
(adviser: Beatriz Roldan Cuenya)
- **Jaekyun Jeon**, *Self-assembly of Rous Sarcoma Virus Capsid Protein, Probed by Solid-State NMR and TEM*
(adviser: Bo Chen)
- **Jarrad Pond**, *Investigating the Predictive Power of Student Characteristics on Success in Studio-model, Algebra-based Introductory Physics Courses*
(advisers: Talat Rahman and Jacquelyn Chini)

- **Anupama Yadev**, *Impact of Gamma Irradiation on the Characteristics of III-N/GaN Based High Electron Mobility Transistors*
(adviser: Elena Flitsiyan)

Fall 2016

- **Ahmed El Halawany**, *Optical Parity Time Metasurface Structures*
(adviser: Demetrios Christodoulides)
- **Aiqun Huang**, *Conformations and Dynamics of Semi-Flexible Polymers*
(adviser: Aniket Bhattacharya)
- **Hemma Mistry**, *Model Nanocatalysts with Tunable Reactivity: Tailoring the Structure and Surface Chemistry of Nanomaterials for Energy and Alternative Fuels Catalysis*
(adviser: Beatriz Roldan Cuenya)

Spring 2017

- **Amin Ahmadi**, *Charge and Spin Transport in Low-Dimensional Materials*
(adviser: Eduardo Mucciolo)
- **Javanese Boroumand Azad**, *Light Trapping in Thin Film Crystalline Silicon Solar Cells*
(adviser: Debashis Chanda, Nanoscience Technology Center)
- **Nagendra Dhakal**, *Computational Approach to Electrocatalysis*
(adviser: Sergey Stolbov)
- **Pedro Figueiredo**, *The Consequences of a Reduced Superlattice Thickness on Quantum Cascade LASER Performance*
(adviser: Arkadiy Lyakh, Nanoscience Technology Center)
- **Marjan Khamesian**, *Theoretical Study of Negative Molecular Ions Relevant to the Interstellar and Laboratory Plasma*
(adviser: Viatcheslav Kokoouline)
- **Roxana Rezvani Naraghi**, *Mesoscopic Interactions in Complex Photonic Media*
(adviser: Aristide Dogariu, College of Optics)
- **Zeinab Sanjabieznaveh**, *High Power Fiber Lasers and Fiber Devices*
(adviser: Rodrigo Amezcua Correa, College of Optics)

GTA Contracts Processed (in units of 0.50 FTE)

Academic Year	Summer	Fall	Spring
2012-2013		33	33.5
2013-2014	13	33.5	34.5
2014-2015	17.5	36	35
2015-2016	19	37	35
2016-2017	16	40.5	42

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

3. Department Personnel (2016 – 2017)

In-Unit Physics Faculty (50)

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

Affiliated Faculty (14)

Dr. Alexander Balaeff <i>Nanoscience Technology Center</i>	Dr. Martin Richardson <i>College of Optics</i>	Dr. Laurene Tetard <i>Nanoscience Technology Center</i>
Dr. Debashis Chanda <i>Nanoscience Technology Center</i>	Dr. Beatriz Roldan Cuenya <i>Ruhr University, Germany</i>	Dr. Konstantin Vodopyanov <i>College of Optics</i>
Dr. Saiful Khondaker <i>Nanoscience Technology Center</i>	Dr. Tania Roy <i>Nanoscience Technology Center</i>	Dr. Boris Zeldovich <i>College of Optics</i>
Dr. Michael Leuenberger <i>Nanoscience Technology Center</i>	Dr. Bhimsen Shivamoggi <i>Mathematics</i>	Dr. Sampyo Hong <i>Brewton-Parker College, GA</i>
Dr. Arkadiy Lyakh <i>Nanoscience Technology Center</i>	Dr. M. J. Soileau <i>College of Optics</i>	

Post-Doctoral Associates (12)

Dr. Karima Lasri <i>(Kara group)</i>	Dr. Jun Wang <i>(Chang group)</i>	Dr. Zilong Zhang <i>(Chang group)</i>
Dr. Jialin Li <i>(Chang group)</i>	Dr. Akhbar Whizin <i>(Colwell group)</i>	Dr. Julie Brisset <i>(Colwell group)</i>
Dr. Xiaoming Ren <i>(Chang group)</i>	Dr. Yi Wu <i>(Chang group)</i>	Dr. Hemma Mistry <i>(Roldan group)</i>
Dr. Jasmeet Singh <i>(Kokoouline group)</i>	Dr. Yanchun Yin <i>(Chang group)</i>	Dr. Mahdi Ahmadi <i>(Roldan group)</i>

Staff Members (12)

Catherine Anderson <i>Office Assistant</i>	Brian Ferrari <i>Machinist Apprentice</i>
Nathan Aultman <i>Cleanroom Technician</i>	Shelley Glaspie <i>Undergraduate Program Assistant</i>
Amanda Bogeman <i>Research Technician</i>	Ray Ramotar <i>Engineer; Laboratory Manager</i>
Jessica Brooks <i>Senior Accountant</i>	Elizabeth Rivera <i>Administrative Assistant and HR Liaison</i>
Phillip Chan <i>Senior Teaching Laboratory Specialist</i>	Esperanza Soto Arcino <i>Graduate Program Assistant</i>
Monika Crittenden <i>Coordinator Research Programs & Services</i>	Robert Wong <i>Machinist</i>

Graduate Students (88 active in Spring 2017)

Faisal Abedin	Gyanendra Dhakal	Firoza Kabir	Danielle Reyes
Hussain Abouelkhair	Bijoya Dhar	Nabin Kandel	Justin Reyes
Shree Ram Acharya	Sayandip Dhara	Mahtab Khan	William Richardson
Marta Antonana	Carlos Diaz	Asim Khaniya	Alireza Safaei
Chance Barrett	Sandra Diez	Gyan Khatri	Sajad Saghaye Polkoo
John Beetar	Charuni Dissanayake	Zoe Landsman	Muhammad Sajid
Rainier Berkley	Constance Doty	Jennifer Larson	Charles Schambeau
Brandon Blue	Stephanie Eckert	Jonathan Lee	Muhammad Shabbir
Daniel Bonior	Rachel Evans	Michael Lodge	Gregory Shinaberry
Sheila Bonnough	Daniel Franklin	Walter Malone	K A M Hasan Siddiquee
Tommy Boykin	Shima Mirzaeimoghadar	Kathleen McIntyre	Tyrone Thames
Sean Buczek	Tianyi Guo	Saad Mehmood	Jesse Thompson
Seth Calhoun	Mary Hinkle	Riffat Munir	Fernand Torres-Davila
Tyler Campbell	Zahra Gharehbagh	Cameron Nickle	William Tucker
Coleman Cariker	MD Mofazzel Hosen	Negar Otrooshi	Naseem Ud Din
Rebecca Cebulka	Molla Islam	Sudeep Pandey	Mahboob Ur Rehman
Ryan Challener	Westley James	MD Afjal Khan Pathan	Priyanka Vaidya
Wesley Chambers	Keanna Jardine	Sabine Pelton	Matthew Wilcox
Andre Childs	Stephanie Jarmak	Leos Pohl	Sajeevi Withanage
Byron Conley	Richard Jerousek	Xin Qiao	Chi Hong Yuen
George Davila	Tao Jiang	Abrar Quadery	Nusaiba Zaman
Emerson DeLarme	Jenna Jones	Takat Rawal	Brian Zamarripa Roman

Short-Term Visitors

Dr. Khalil Amine, <i>Argonne National Laboratory</i> (host: A. Kara, February 2017)	Dr. Eduardo Novais, <i>UFABC, Brazil</i> (host: E. Mucciolo, November 2016)
Dr. Florencia Calaza, <i>CONICET, Argentina</i> (host: W. Kaden, January 2017)	Dr. Miles Stoudenmire, <i>University of California at Irvine</i> (host: E. Mucciolo, February 2017)
Dr. Nicolas Douguet, <i>Drake University</i> (host: L. Argenti, February 2017)	Dr. Denis Ullmo, <i>Universiy of Paris – Sud, France</i> (host: E. Mucciolo, October 2016)
Tor Kjellsson, <i>Stockholm University, Sweden</i> (host: L. Argenti, September–October, 2016)	Fengjiang Zhuang, <i>Huaqiao University, China</i> (host: Z. Chang, since October 2016)
Dr. Caio Lewenkopf, <i>UFF, Brazil</i> (host: E. Mucciolo, March 2017)	

4. Faculty Productivity

Summary Table: In-Unit Physics Faculty Scholarly Work in 2016-2017

Faculty Member	Indexed, peer-reviewed articles	Conference proceedings	Contributed abstracts and presentations	Book chapters	Books	Invited presentations	Patents and disclosures
Al-Rawi	-	1	-	-	-	-	-
Argenti	5	-	4	-	-	5	-
Bennet	-	-	3	-	-	1	-
Bhattacharya	1	-	1	-	-	1	-
Bindell	-	-	-	-	-	-	-
Blair	4	-	-	-	-	3	5
Britt	3	4	16	-	-	3	1
Brueckner	-	-	-	-	-	-	-
Campins	4	1	7	-	-	4	-
Chang	7	1	5	-	-	16	-
B. Chen	1	-	1	-	-	3	-
Z. Chen	2	1	-	-	-	-	-
Chernyak	3	-	-	-	-	3	-
J. Chini	2	2	4	-	-	3	-
M. Chini	4	-	5	-	-	3	-
Chow	1	2	-	-	-	-	1
Colwell	7	-	10	1	1	2	-
Cooney	-	-	-	-	-	-	-
del Barco	4	-	1	-	-	4	-
Donoghue	1	3	3	-	-	-	-
Dove	-	-	10	-	-	1	-
Dubey	-	-	-	-	-	-	-
Efthimiou	-	-	-	-	-	-	-
Feng	1	-	-	-	-	1	-
Fernandez	6	-	18	-	-	-	-
Flitsiyan	3	-	2	-	-	2	-
Harrington	4	-	12	-	-	-	-
Ishigami	5	-	5	-	-	7	1
Johnson	-	-	-	-	-	-	-
Kaden	2	-	2	-	-	2	1
Kara	3	1	3	-	-	2	-
Klemm	2	-	1	-	-	3	-
Kokoouline	9	-	6	-	-	6	-

Faculty Member	Indexed, peer-reviewed articles	Conference proceedings	Contributed abstracts and presentations	Book chapters	Books	Invited presentations	Patents and disclosures
LaMee	-	-	-	-	-	3	-
Le	7	-	8	-	-	1	-
Luo	-	-	4	-	-	-	-
Montgomery	2	1	1	-	2	1	-
Mucciolo	6	-	4	-	-	3	2
Nakajima	-	-	1	1	-	1	-
Neupane	10	-	2	-	-	2	-
Peale	5	3	3	-	-	2	2
Rahman	9	-	20	-	-	20	-
Saha	-	-	2	-	-	-	-
Schelling	1	-	-	-	-	-	1
Schulte	1	-	4	-	-	1	1
Stolbov	-	-	1	-	-	1	-
Tatulian	2	-	1	2	-	1	-
Turkowski	-	-	1	-	-	1	-
Vaida	-	-	3	-	-	-	-
Velissaris	-	-	-	-	-	-	-
Department Total	108	20		4	3	111	11

Articles in Peer-Reviewed Journals by In-Unit Physics Faculty (108)

1. C. Marante, M. Klinker, I. Corral, J. González-Vázquez, L. Argenti, and F. Martín, *Hybrid basis close-coupling interface to quantum chemistry packages for the treatment of ionization problems*, J. Chem. Theory Comput. **13**, 499 (2016).
2. S. Heuser, Á. Jiménez Galán, C. Cirelli, C. Marante, M. Sabbar, R. Boge, M. Lucchini, L. Gallmann, I. Ivanov, A.S. Kheifets, J.M. Dahlström, E. Lindroth, L. Argenti, F. Martín, and U. Keller, *Angular dependence of photoemission time delay in helium*, Physical Review A **94**, 063409 (2016).
3. Y. Cheng, M. Chini, X.W. Wang, A. Gonzalez-Castrillo, A. Palacios, L. Argenti, F. Martin, and Z. Chang, *Reconstruction of an excited-state molecular wave packet with attosecond transient absorption spectroscopy*, Phys. Rev. A **94**, 023403 (2016).
4. V. Gruson, L. Barreau, A. Jimenez-Galan, F. Risoud, J. Caillat, A. Maquet, B. Carre, F. Lepetit, J.F. Hergott, T. Ruchon, L. Argenti, R. Taieb, F. Martin, and P. Salieres, *Attosecond dynamics through a Fano resonance: Monitoring the birth of a photoelectron*, Science **354**, 734 (2016).

5. L. Argenti, Á. Jiménez-Galán, J. Caillat, R. Taïeb, A. Maquet, and F. Martín, *Control of photoemission delay in resonant two-photon transitions*, Phys. Rev. A **95**, 043426 (2017).
6. Aiqun Huang, Walter Reisner, and Aniket Bhattacharya, *Dynamics of DNA Squeezed Inside a Nanochannel via a Sliding Gasket*, Polymers, 2016, **8**, 352; doi:10.3390/polym810035 (invited article on a special issue on semiflexible polymer).
7. Xie, Z., V. De Lucca, R.A. Haber, D.T. Restrepo, J. Todd, R.G. Blair, and N. Orlovskaya, *Aluminium magnesium boride: synthesis, sintering and microstructure*. Adv. Appl. Ceram., 2017: p. accepted available online ahead of print. <http://dx.doi.org/10.1080/17436753.2017.1317116>
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89. I. Belopolski, D. S. Sanchez, Y. Ishida, X. Pan, P. Yu, S.-Y. Xu, G. Chang, T.-R. Chang, H. Zheng, N. Alidoust, G. Bian, M. Neupane, S.-M. Huang, C.-C. Lee, Y. Song, H. Bu, G. Wang, S. Li, G. Eda, H.-T. Jeng, T. Kondo, H. Lin, Z. Liu, F. Song, S. Shin and M. Z. Hasan, *Discovery of a new type of topological Weyl fermion semimetal state in MoxW1-xTe2*, Nat. Commun. **7**, 13643(2016). DOI: <https://doi.org/10.1038/ncomms13643>
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91. I. Belopolski, S.-Y. Xu, Y. Ishida, X. Pan, P. Yu, D. S. Sanchez, M. Neupane, N. Alidoust, G. Chang, T. -R. Chang, Y. Wu, G. Bian, H. Zheng, S.-M. Huang, C.-C. Lee, D. Mou, L. Huang, Y. Song, B. Wang, G. Wang, Y.-W. Yeh, N. Yao, J. E. Rault, P. L. Fèvre, F. Bertran, H.-T. Jeng, T. Kondo, A. Kaminski, H. Lin, Z. Liu, F. Song, S. Shin, M. Z. Hasan; *Fermi arc electronic structure and Chern numbers in the type-II Weyl semimetal candidate Mo_xW_{1-x}Te₂*; Phys. Rev. B **94**, 085127 (2016). [Editors' Suggestion] DOI: <https://doi.org/10.1103/PhysRevB.94.085127>
92. N. Alidoust, C. Liu, SY Xu, I. Belopolski, T. Qi, M. Zeng, D. S. Sanchez, H. Zheng, G. Bian, M. Neupane, Y.-T. Liu, S.D. Wilson, H. Lin, A. Bansil, G. Cao, M. Z. Hasan; *Observation of metallic surface states in the strongly correlated Kitaev-Heisenberg candidate Na₂IrO₃*; Phys. Rev. B **93**, 245132 (2016). DOI: <https://doi.org/10.1103/PhysRevB.93.245132>
93. Montgomery M.M., Voloshina I., Olenick R., Meziere K., & Metlov V., 2017, *Photometric observations and Numerical modeling of SDSS J162520.29+120308.7, an SU UMa in the CV period gap*, New Astronomy, 50, 43M.

94. Montgomery M.M., Voloshina I., Goel A., 2016, *Photometric observations and numerical modeling of AW Sge*, *New Astronomy*, 42, 78M.
95. Mehmet Yesiltas, Julia Sedlmair, Robert Peale, and Carol Hirschmugl, *Synchrotron-based three-dimensional Fourier Transform Infrared spectro-microtomography of Murchison meteorite grain*, *Applied Spectroscopy* **71**(6) 1198–1208 (2017) DOI: 10.1177/0003702816671072
96. Sarmad Fawzi Hamza Alhasan, Farnood Khalilzadeh-Rezaie, Robert E. Peale, Isaiah O. Oladeji, *Ropy foam-like TiO₂ film grown by water-based process for electron-conduction layer of perovskite solar cells*, *MRS Advances* 1 (46, Energy and Environment), pp. 3169-3174 (2016). Doi: 10.1557/adv.2016.478
97. R. E. Peale, S. Calhoun, C. J. Fredricksen, E. Smith, S. Vangala, K. Leedy, J. R. Hendrickson, and J. W. Cleary, *Effect of Compound Dielectric and Metal Thinning on Metal-Insulator-Metal Resonant Absorbers for Multispectral Infrared Air-Bridge Bolometers*, *MRS Advances* , pp. 1-6 (2017). doi: 10.1557/adv.2017.30.
98. Robert E. Peale, Evan Smith, Hussain Abouelkhair, Isaiah O. Oladeji, Shiva Vangala, Tim Cooper, Gordon Grzybowski, Farnood Khalilzadeh-Rezaie, Justin W. Cleary, *Electrodynamic properties of aqueous spray deposited SnO₂:F films for infrared plasmonics*, *Opt. Eng.* 56(3), 037109 (2017), doi: 10.1117/1.OE.56.3.037109.
99. A. Gupta, T. B. Rawal, C. J. Neal, S. Das, T. S. Rahman, S. Seal, *“Molybdenum disulphide for ultra-low detection of free radicals: electrochemical response and molecular modeling*, *2D materials* **4**, 025077 (2017).
100. S. R. Acharya, S. Islamuddin Shah, and T. S. Rahman, *Diffusion of small Cu islands on the Ni(111) surface: A self-learning kinetic Monte Carlo study*, *Surface Science* 662 (2017) 42-58.
101. W. C. Tucker and P. K. Schelling, *Thermodiffusion in liquid binary alloys computed from molecular-dynamics simulation and the Green-Kubo formalism*, *J. Comp. Mat. Sci.* **124**, 54-61 (2016).
102. J. Beetar, A. Schulte, S. Talias, S. K. Lunsford, *Raman spectroscopy studies of conductive polymer [P3MT] with lead on different surfaces: A correlation study of electrochemical analysis of conductive polymer with toxic heavy metal in the detection of Pyrocatechol*, *Chem. Educator* **22**, 29- 32 (2017).
103. Goldblatt G, Cilenti L, Matos JO, Lee B, Ciaffone N, Wang QX, Tetard L, Teter K, Tatulian SA. (2017) *Unmodified and pyroglutamylated amyloid β peptides form hypertoxic hetero-oligomers of unique secondary structure*. *FEBS J.* 284(9):1355- 1369. DOI: 10.1111/febs.14058.
104. Banerjee T, Cilenti L, Taylor M, Showman A, Tatulian SA., Teter K. (2016) *Thermal unfolding of the pertussis toxin S1 subunit facilitates toxin translocation to the cytosol by the mechanism of endoplasmic reticulum-associated degradation*. *Infection and Immunity.* 84(12):3388-3398. PMID: 27647866.
105. C. Chamon, E. R. Mucciolo, A. E. Ruckenstein, and Z.-C. Yang, *Quantum vertex model for reversible classical computing*, *Nature Communications* **8**, 15303 (2017). DOI:10.1038/ncomms15303

106. E. Novais, A. J. Stanforth, and E. R. Mucciolo, *Surface code fidelity at finite temperature*, Physical Review A **95**, 042339 (2017). DOI:10.1103/PhysRevA.95.042339.
107. E. Ridolfi, L. R. F. Lima, E. R. Mucciolo, and C. H Lewenkopf, *Electronic transport in disordered MoS2 nanoribbons*, Physical Review B **95**, 035430 (2017). DOI:10.1103/PhysRevB.95.035430.
108. A. R. Garrigues, L. Yuan, E. R. Mucciolo, D. Thompson, E. del Barco, and C. A. Nijhuis, *A single-level tunnel model to account for the electrical transport through single molecule- and self-assembled monolayer-based junctions*, Scientific Reports **6**, 26571 (2016). DOI:10.1038/srep26571.

Conference Proceedings by In-Unit Physics Faculty (20)

1. Exploration of Gold Nanoparticle Properties Using Atomic Force Microscopy, Steven Carolus, Claudia Ragosta, Shree Ram Acharya, Abdelkader Kara, Ahlam Al-Rawi, Laurene Tetard, NanoFlorida 2016 Conference (9/25,26/2016)
2. W Chambers; P Metzger (2016). Regolith Instability Caused by Gas Diffusion: A Case Study of the Asteroid Redirect Mission. Proceedings of the Fifteenth Biennial ASCE Aerospace Division International Conference on Engineering, Science, Construction, and Operations in Challenging Environments.
3. Covey S.D., Lewis J.S., Metzger P.T., and Britt D.T. (2016) Simulating the Surface Morphology of a Carbonaceous Chondrite Asteroid. Proceedings of 2016 ASCE Earth and Space Conference.
4. Sercel J.C., Dreyer C.B., Abbud-Madrid A. Britt D.T. Jedicke R., Gertsch L. and Love S.G. (2016) A Coordinated Research Program To Develop The Technology to Optical Mine Asteroids. Proceedings of 2016 ASCE Earth and Space Conference.
5. Britt D.T. and Beltran E. (2016) Addressing Exploration and ISRU Safety Challenges for Volatile Rich Asteroids. Proceedings of 2016 ASCE Earth and Space Conference.
6. Metzger P.T., Britt D.T. and Lewis J.S. (2016) Results of the 2015 Workshop on Asteroid Simulants. Proceedings of 2016 ASCE Earth and Space Conference.
7. Z. A. Landsman, Emery, Joshua P., Campins, Humberto, *M-type asteroids in the mid-infrared: thermal inertias and emissivity spectra*, Asia Oceania Geophysical Society (AOGS) international meeting in Beijing, August (2016).
8. Chaoming Li, Xinrong Chen, Lin Li, Xiaoyang Li, Hang Zha, Jian Yu, Zuyuan Hu, Wenlong Zou, Jianhong Wu, Zenghu Chang, "Design and fabrication of transmission gratings with high diffraction efficiency for pulse compression," Proc. SPIE 10016, High-Power Lasers and Applications VIII, 100161D (2016); doi:10.1117/12.2244872
9. Lee, S., Chen, Z., Pritchard, D., Kimn, A. & Paul, A. Factor Analysis Reveals Student Thinking using the Mechanics Reasoning Inventory. in *Proceedings of the Fourth (2017) ACM Conference on Learning @ Scale - L@S '17* 197–200 (ACM Press, 2017). doi:10.1145/3051457.3053984

10. "Characterizing Studio Physics Instruction across Instructors and Institutions," Matthew Wilcox*, Gerald Feldman, Joshua S. Von Korff, Noel Klinger, Ozden Sengul and Jacquelyn J. Chini, *Proceedings of the 2016 Physics Education Research Conference*, July 20 – 21, 2016, Sacramento, CA.
11. "The 'Revisting' Strategy in Physics Tutorials," Joshua S. Von Korff, Amin Bayat Barooni*, Hannah Pamplin* and Jacquelyn J. Chini, *Proceedings of the 2016 Physics Education Research Conference*, July 20 – 21, 2016, Sacramento, CA.
12. O. Lupan, L. Chow, Th. Pauporte, B. Viana, and R. Adelung, "Single Nanowire Nanosensors: A Case Study of the Effects on Metal Doping on ZnO", 3rd International Conf. on Nanotech and Biomedical Engineering, pp 115-118 (2016). Doi: 10.1007/978-981-287-736-9_27.
13. O. Lupan, R. Adelung, V. Postica, N. Ababii, L. Chow, B. Viana, T. Pauporte, "UV radiation and CH₄ gas detection with a single ZnO:Pd nanowire" Proc. Of SPIE Vol. 10105, 101051Y (2017). Doi:10.1117/12.2249841.
14. Bidorn, B., Kish, S.A., Donoghue, J.F., Bidorn, K., and Mama, R., 2017, Change in sediment characteristics and sediment load of the Nan River due to large dam construction: Proceedings, 37th IAHR World Congress, August 13-18, 2017, Kuala Lumpur, Malaysia. (2017).
15. Bidorn, B., Kish, S. A., Donoghue, J. F., Huang, W., and Bidorn, K., 2016, *Variability of total sediment supply of the Chao Phraya River, Thailand*: Proceedings, International Symposium on River Sedimentation, September 19-22, 2016, Stuttgart, Germany. (2016).
16. Bidorn, B., Kish, S. A., Donoghue, J. F., Bidorn, K., & Mama, R., 2016, *Sediment Transport Characteristics of the Ping River Basin, Thailand*. Proceedings, 12th International Conference on Hydroinformatics, HIC 2016; August 21-26, 2016, Incheon, South Korea; Procedia Engineering, 154, 557-564. (2016).
17. Montgomery M.M., 2017, What Simulations Tell Us About White Dwarf Evolution in AM CVn Close Binaries, ASPC, 509, 549M.
18. Robert E. Peale, Isaiah O. Oladeji, Evan M. Smith, Vladimir Vasilyev, Sarmad Fawzi Hamza Alhasan, Hussain Abouelkhair, Dalibor Todorovski, Martin Kimani, Justin W. Cleary, "Pyroelectric response of spray-deposited BaTiO₃ thin film," in Nanostructured Thin Films IX, edited by Akhlesh Lakhtakia, Tom G. Mackay, Motofumi Suzuki, Proc. of SPIE Vol. 9929, 99290Z (2016).
19. Justin W. Cleary, Ricky Gibson, Evan M. Smith, Shiva Vangala, Isaiah O. Oladeji, Farnood Khalilzadeh-Rezaie, Kevin Leedy, and Robert E. Peale, "Infrared photonic to plasmonic couplers using spray deposited conductive metal oxides," in Oxide-based Materials and Devices VIII, edited by Ferechteh H. Teherani, David C. Look, David J. Rogers, Proc. of SPIE, Vol. 10105, 101050E (2017) doi: 10.1117/12.2254315.
20. Sneha Neupane, Colton E. Bishop, Robert E. Peale, Subith Vasu, "FTIR absorption cross section measurements of organo-phosphorus compounds," 10th U.S. National Combustion meeting; April 23 – 26, 2017; University of Maryland, College Park (Paper ID: 2DI-0034)

Book Chapters by In-Unit Physics Faculty (4)

1. Colwell, J. E., J. Blum, R. Clark, S. Kempf and R. Nelson 2017 (in press). Laboratory Studies of Planetary Ring Systems. Chapter for the book *Planetary Ring Systems* (M. S. Tiscareno and C. D. Murray, Eds.) Cambridge University Press.
2. Y. Nakajima, "122-type iron based superconductors", in K. Kadowaki (Ed.), *Physics of Vortices in Superconductors* (Shokabo, Tokyo, Japan, 2017), ISBN: 978-4-7853-2922-8 (in Japanese).
3. Tatulian SA (2017) Interfacialenzymes: membranebinding, orientation, membraneinsertion, andactivity. In:Enzymologyat the Membrane Interface (M.H. Gelb, ed.), Ch. 11, Elsevier, pp.197-231. DOI: 10.1016/bs.mie.2016.09.009
4. Tatulian SA. (2017) Insulin Receptor. In: Encyclopedia of Signaling Molecules (S. Choi, ed.), Springer, pp. 1-12 (in press) DOI: 10.1007/978-1-4614-6438-9_101671-1

Books by In-Unit Physics Faculty (3)

1. Joshua Colwell, *The Ringed Planet – Cassini’s voyage of discovery at Saturn*. IOP Concise Physics – a Morgan and Claypool Publication. ISBN: 978-1681744964. Published April 2017
2. Seeds M., Backman D., and Montgomery M.M., 2017, *Horizons Hybrid*, 13th Edition, Cengage Learning, Boston MA – textbook ISBN-13: 978-1133365235, ISBN-10: 113336523X
3. Seeds M., Backman D., and Montgomery M.M., 2017, *Universe Hybrid*, 8th Edition, Cengage Learning, Boston MA – textbook ISBN-13: 978-1285853888, ISBN-10: 1285853881

Other Publications by In-Unit Physics Faculty (5)

1. Barry I. Schneider, Klaus Bartschat, Luca Argenti, Numerical Solutions of the Time Dependent Schrödinger Equation, NIST Summary of Activities for Fiscal Year 2016 of the Applied and Computational Mathematics Division, page 47 (NISTIR 8175, March 2017).
2. Mazanek D.D., Britt D.T. and 23 coauthors (2016) Asteroid Redirect Mission (ARM) Formulation Assessment and Support Team (FAST) Final Report. NASA/TM–2016-219011
3. 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 aqueous PNIPAM solutions," Annual report 2016 Chair of functional materials, Physics Department, TU Munich.
4. K.-L. Claude, D. Aravopoulou, B.-J. Niebuur, A. Schulte, V. Hildebrand, A. Laschewsky, P. Mueller-Buschbaum, A. Kyritsis, C. M. Papadakis, "Phase behavior of PNIPMAM in dependence on temperature and pressure," Annual report 2016 Chair of functional materials, Physics Department, TU Munich.

5. P. Haslauer, B.J. Niebuur, K.L. Claude, A. Schulte, C. M. Papadakis, "Optimization of a high-pressure cell and investigation of thermoresponsive polymers," Annual report 2016 Chair of functional materials, Physics Department, TU Munich.

Invited Presentations by In-Unit Physics Faculty (111)

L. Argenti (4):

1. *Birth of a resonant photoelectron wavepacket*. 25th International Conference on Atomic Physics (ICAP), Seoul, South Korea, invited talk (July 24-29, 2016).
2. *Attosecond interferometric spectroscopy of resonant transitions*. ITAMP Workshop, The electronic structure problem in theoretical strong-field physics, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA (October 10-14, 2016).
3. *A dance of two particles*. Center of Relativistic Laser Science at Gwangju Institute of Science and Technology (GIST), Ultrashort Quantum Beam Facility, South Korea, July 29 - 30 (2016).
4. *Attosecond interferometric spectroscopy of resonant transitions*. Seminar at NIST (March 17th 2017, Gaithersburg, MD) on the occasion of a research mission there.
5. *Theoretical Atomic Attosecond Spectroscopies*. 2016 ISSNAF Awards for Young Investigators, Italian Embassy, Washington DC, October 18 (2016).

C. Bennett (1):

1. *Astrobiology and Evolution*. Mon Feb 13th, Darwin Week, College of Charleston, SC (Feb 12-17 2017), <http://ssm.cofc.edu/additional-programs/darwin-week/index.php>

Aniket Bhattacharya (1):

1. *DNA conformations and dynamics squeezed inside a nano-channel with a sliding gasket*. Department of Mechanical Engineering, Northwestern University, Evanston, IL, May 01, 2017.

R. Blair (3):

1. *The Rapid, Scalable Mechanochemical Synthesis of Carbon Quantum Dots (CQDs) from Sustainable Precursors*. 2016 Sustainable Nanotechnology Organization Conference, Orlando, FL, United States, November 11, 2016.
2. *The Safer and Scalable Mechanochemical Synthesis of Edge Chlorinated and Fluorinated Few-Layer Graphenes*. MS&T 16, Salt Lake City, UT, United States, October 24, 2016.
3. *Mechanocatalysis Facilitated by Defect-Laden 2D Structures*. Wake Forest University, Winston-Salem, NC, September 28, 2016.

D. Britt (3):

1. *What We do Know about Asteroid Regoliths for Observations, Meteorites, and Modeling*. ISSI Workshop on Cosmic Dust from the Lab to the Stars. Bern, Switzerland, November 2016.
2. *Asteroid Regoliths*. NASA Dust to Thrust Workshop. Kennedy Space Center, FL, September, 2016.
3. *What We do Know about Asteroid Regoliths for Observations, Meteorites, and Modeling*. Boston College, MA, Department of Physics, April 6, 2016.

H. Campins (4):

1. *NASA's OSIRIS-REx and ARM: Asteroid Sample Return Missions*. Invited Speaker at the Institute of Astrophysics of the Canarie's Winter School (Tenerife, Spain, November 8, 2016).
2. *Have Asteroids Brought Water and Organic Molecules to Earth?* Invited Colloquium at Universidad Aut3noma de Barcelona, (Barcelona, Spain, June 8, 2016).
3. *NASA's OSIRIS-REx Asteroid Sample Return Mission: Exploring our Past Securing our Future*. Invited Public Lecture at the Orlando Science Center (Orlando, FL, September 17, 2016).
4. *NASA's OSIRIS-REx and ARM Asteroid Sample Return Missions*. Invited public lecture at the Central Florida Astronomical Society, Seminole State College, Lake Mary, FL, January 11, 2017)

Z. Chang (16):

1. *Generation of below and above threshold high harmonics with MIR lasers*, Annual Review Meeting for MURI program "Fundamental Strong-Field Interaction with Ultrafast, Mid-Infrared Lasers," Columbus, OH, April 18-19, 2017.
2. *Principles of attosecond technology: generation and metrology*, The Frontiers of Attosecond and Ultrafast X-ray Science, Erice, Sicily, Italy, March 19-28, 2017.
3. *Isolated attosecond pulses in the water window*, American Physical Society March Meeting, New Orleans, Louisiana, March 17, 2017.
4. *Soft X-ray shines on new attosecond horizon through water window*, International Focus Workshop with Annual Meeting of the DFG Priority Program QUTIF17, Dresden, Germany, Feb. 26 - March 1, 2017.
5. *Micro-J isolated attosecond pulses for atto pump-atto probe*, DARPA PULSE quarterly review, Arlington Virginia. Jan 27, 2017.
6. *Attosecond X-rays in the Water Window*, Southeast Ultrafast Conference, Clemson, South Carolina, Jan. 18-19, 2017.
7. *Generation and Characterization of Isolated Attosecond Pulses Driven by MIR Lasers*, 2016 Joint-Attosecond-MURI Annual Meeting University of Arizona, Tucson, AZ, November 14 and 15, 2016.

8. *Soft X-ray Light Sources for Attosecond Transient Absorption in the Water Window*, 2016 Joint-Attosecond-MURI Annual Meeting University of Arizona, Tucson, AZ, November 14 and 15, 2016.
9. *Attosecond Light Sources in the Water Window*, Frontiers in Optics 2016, Rochester, New York United States, 17–21 October 2016.
10. *Microjoule isolated attosecond pulses for atto pump-atto probe*, DARPA PULSE Program Review Meeting, September 28-29, 2016. Berkeley California.
11. *Studying Ultrafast Electron Dynamics in Condensed Matter with Next Generation Attosecond X-ray Sources*, MURI Review Meeting, August 22 -23, 2016, Arlington.
12. *Attosecond Optics*, Short Course, CLEO (Conference on Lasers and Electro-Optics), June 5-10, 2016. San Jose, CA.
13. *Soft X-ray shines on new attosecond horizon through water window*, University of Ottawa, Canada, March 9, 2017.
14. *New generation attosecond light sources*, Friedrich-Schiller-Universität Jena, Germany, March 2, 2017.
15. *Advances in Attosecond Optics Frontier*, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, May 24, 2016. Xi'an, China.
16. *Advances in Attosecond Optics Frontier*, Xi'an Jiaotong University, May 23, 2016. Xi'an, China.

Bo Chen (3):

1. *Structural model of the tubular assembly of Rous sarcoma virus capsid protein*, APS 2017 March meeting.
2. Wuhan Institute of Physics and Mathematics, Chinese Academy of Science, *Structural model of the tubular assembly of Rous sarcoma virus capsid protein*, Wuhan, China, Dec 19, 2016.
3. National Key Laboratory of Biotherapy, Sichuan Univ., *Structural model of the tubular assembly of Rous sarcoma virus capsid protein*, Chengdu, China, Dec 26, 2016.

L. Chernyak (3):

1. *Electron beam probing of wide and narrow band gap semiconductors*. Feinberg School Conference. Weizmann Institute of Science, Rehovot, Israel. May 18-22, 2016.
2. *Electron Injection-Induced Effects in Wide Band Gap Semiconductors: Physics and Applications*. Attolight AG and Ecole Polytechnique Federale de Lausanne (EPFL), Lausanne, Switzerland. May 26, 2016.

3. *Studies of Electron Trapping in GaN and other Wide Band Gap Semiconductors*. Israel Institute of Technology (Technion). March 14, 2017

J. Chini (3):

1. *Finding Groups in Student-level Data: Utilizing the Profile Approach*. *Proceedings of the 2016 Physics Education Research Conference*, July 20 – 21, 2016, Sacramento, CA.
2. *Investigating Diverse Implementations of Studio Physics*. Florida International University, Miami, FL, April 7, 2017.
3. *One Size Fits All? Tailoring Active Learning Strategies in Introductory Physics for Students and Instructors*. Texas A&M Commerce, Commerce, TX, October 20, 2016.

M. Chini (3):

1. *High-order Harmonic and Attosecond Spectroscopy in Materials* AFOSR Ultrashort Pulse Laser-Matter Interactions Program Review, Arlington, VA (2016).
2. *High-order Harmonic Generation in Bulk Crystals with a 50 kHz Mid-IR OPA*. ARO and AFOSR Joint Attosecond MURI Annual Meeting, University of Arizona (2016).
3. *Solid-State High-order Harmonic Sources & Spectroscopy*. CREOL – The College of Optics and Photonics, University of Central Florida (2017).

J. Colwell (2):

1. *Science and Science Fiction: The Boundary Between Fantasy and Futurism*. American Chemical Society annual meeting, San Francisco CA, April 2017.
2. *Running Rings Around Saturn*. Science Café Presentation at UCF. September 29, 2016.

E. del Barco (4):

1. International Conference of Molecule-based Magnets (ICMM) – August 2016, Japan – *Transport in molecular junctions as a function of temperature*.
2. Workshop: Mechanisms of (Bio)Molecular Charge Transport: which, when, how? – May 2016, Weizman Institute, Israel – *Transport in molecular junctions as a function of temperature*.
3. Ohio State University, Department of Physics, April 2017, Columbus, Ohio – *Molecular Tunnel Junctions: Transport Models - A comparative view*.
4. University of Oxford, Department of Materials Science, June 2016, Oxford, England – *Molecular Tunnel Junctions: Transport Models - A comparative view*

A. Dove (1):

1. *Development of SurfSat: A CubeSat to study on-orbit spacecraft charging events.* University of Alabama at Huntsville, Physics Department Seminar, October 4, 2016.

X. Feng (1):

1. *Defect-Rich Metal Nanocatalysts for Electroreduction of CO₂ to Liquid Fuel.* Florida Solar Energy Center, Jan. 2017, Cocoa.

E. Flitsiyan (2):

1. Florida AAPT Conference, invited talk: *A Service-Learning Component in Introductory Physics Course – Increasing Enrollment in STEM.* November 15-17 2016, Orlando, FL
2. *Radiation Effects in Wide-Band-Gap Semiconductors.* Honors Seminars Series, Seminole State College, April 14, 2017.

M. Ishigami (7):

1. *Lubricity of gold nanocrystals on graphene.* Annual Meeting of the Society of Tribologists and Lubrication Engineers, 5/23/17.
2. *Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes.* University of Wisconsin, Madison, Madison, WI, 5/12/16.
3. *Ultra-low friction of gold nanocrystals on graphene.* University of Maryland, College Park, MD, 9/22/16.
4. *Ultra-low friction of gold nanocrystals on graphene.* University of Utah, Salt Lake City, Utah, 9/27/16.
5. *Measurement of resistance induced by a single potassium atom on chiral-angle known nanotubes.* Naval Research Laboratory, Washington DC, 10/12/16.
6. *Ultra-low friction of gold nanocrystals on graphene.* Georgetown University, Washington DC, 2/7/17.
7. *Ultra-low friction of gold nanocrystals on graphene.* National High Magnet Field Laboratory, Florida State University, 3/2/17.

W. Kaden (2):

1. *Exploring Pd Adsorption, Diffusion, Permeation, and Nucleation on Bilayer SiO₂/Ru as a Function of Hydroxylation and Precursor Environment: From UHV to Catalyst Preparation.* 2016 SESAPS Conference, Charlottesville, Virginia, November 11, 2016.
2. *Exploring Pd Adsorption, Diffusion, Permeation, and Nucleation on Bilayer SiO₂/Ru as a Function of Hydroxylation and Precursor Environment: From UHV to Catalyst Preparation.* International Conference on Catalysis, Baltimore, Maryland, February 22, 2017.

A. Kara (2):

1. *Computational tools for materials*. EPIOPTICS-14, Antonio Cricenti, Erice, July 24-310, 2016.
2. *Role of van der Waals interactions in 2D organic materials on metal surfaces*, EPIOPTICS-14, Antonio Cricenti, Erice, July 24-30, 2016.

R. Klemm (3):

1. *Cavity mode enhancement of the terahertz emission from square, equilateral triangular, and pie-shaped wedge thermally-managed microstrip antennas of the high temperature superconductor $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_{8+\delta}$* . Plasma2016 workshop, Nanjing, China, October 12, 2016.
2. *The dramatic role of symmetry for a quantum particle in a high-symmetry two-dimensional box and for a thin electromagnetic microstrip antenna*. Invited colloquium given at the Physics Department, University of Science and Technology Beijing, Beijing, China October 14, 2016.
3. *A quantum particle in a high-symmetry two-dimensional box and the electromagnetic cavity modes in high-symmetry microstrip antennas*. Invited colloquium given at Seminole State University, Sanford, FL, October 28, 2016.

V. Kokoouline (6):

1. Technical meeting "Uncertainty Assessment and Benchmark Experiments for Atomic and Molecular Data for Fusion Applications", December 19-21, 2016, International Atomic Energy Agency, UN, Vienna, Austria. *Uncertainty evaluation in theoretical calculations of cross sections for electron-molecule collisions*.
2. *Photodetachment and radiative electron attachment to molecules of astrophysical interest*. May 24, 2017, Department of Chemistry, Moscow State University, Moscow, Russia.
3. *Electron-molecule collisions: theory, experiments, and applications*. May 23, 2017, Skoltech University, Moscow, Russia.
4. *Photodetachment and radiative electron attachment to molecules of astrophysical interest*, October 6, 2016, Max Planck Institute for Nuclear Physics, Heidelberg, Germany.
5. *The role of dipole bound states and resonances in the photodetachment of AgF^-* , October 19, 2016, Department of Physics, University of Innsbruck, Austria.
6. *Photodetachment and radiative electron attachment to molecules of astrophysical interest*, November 8, 2016, Department of Physics, University of Innsbruck, Austria.

A. LaMee (3):

1. *Teacher Preparation at UCF PhysTEC*, Amer Assoc of Physics Teachers National Conf, (Sacramento, CA, July 2016).

2. Keynote speaker, Spring tutor training, Academic Success Center, Valencia State College, Orlando (Jan 2017).
3. *Coding in Middle School Science*, FL Assoc of Science Supervisors, Orlando (May 2017).

D. Le (1):

1. *Two-dimensional materials for cost effective catalysts*, APS March Meeting (New Orleans, LA, March 2017).

M. Montgomery (1):

1. *Accretion Disk Models & Simulations to Test Evolutionary Models*, Accretion Processes in Cosmic Sources, St. Petersburg, Russia, September 2016.

E. Mucciolo (3):

1. *Solving computational problems by annealing a planar quantum vertex model*, 6th Mexican Meeting on Mathematical and Experimental Physics (El Colegio Nacional, Mexico City, Mexico, September 8th, 2016).
2. *Critical delocalization of chiral zero energy modes in graphene*, International Symposium on Recent Developments on 2D Materials Research: Theory and Experiment (University of York, York, U.K., May 18th, 2016).
3. *Solving computational problems by annealing a planar quantum vertex model*, QHub, Department of Physics, University of York, York, U.K. (May 17th, 2016).

Y. Nakajima (1):

1. *Chiral edge transport induced by Dirac-electron-mediated ferromagnetic domain walls in topological Kondo insulator SmB₆*, APS March Meeting (New Orleans, LA, March 2017).

M. Neupane (2):

1. *Experimental Realization of three Dimensional Dirac semimetal*, 2D and Dirac material workshop (Jacksonville, Florida, December, 2016).
2. *Relaxation dynamics on topological insulators*, Spin-orbit coupling and topology in low dimensions (Spetses, Greece, July 2016).

R. Peale (2):

1. *Oxide materials for full-function infrared plasmonic devices*. Sensor Directorate, AFRL, WPAFB, OH 28 July 2016.
2. *Multispectral Infrared Detection Using Plasmonic Resonant Absorbers Integrated with Room-Temperature VO_x Air-Bridge Bolometers*. U. Mass Boston, 1 December 2016.

T. Rahman (20):

1. *Rational Designing of Chemical & Optical Properties of 2D Transition Metal Dichalcogenides*, COMP Seminar, Department of Applied Physics, Aalto University, Finland, April 19, 2017.
2. *Computational Design of Metal–Coordination Centers for Catalytic Applications*, 253rd ACS Spring Meeting, San Francisco, April 2-6, 2017.
3. *Tailoring properties of 2D transition metal dichalcogenides: looking beyond graphene*, TMS Annual Meeting, San Diego, February 26-March 2, 2017.
4. *Computational Design of Metal–Coordination Centers for Catalytic Applications*, 253rd ACS Spring Meeting, San Francisco, April 2-6, 2017.
5. *Rational Designing of Chemical & Optical Properties of 2D Transition Metal Dichalcogenides*, COMP Seminar, Department of Applied Physics, Aalto University, Finland, April 19, 2017.
6. *Graduate program assessment*, Graduate Education & APS Bridge Program Conference, College Park, Maryland, February 10-12, 2017 (panelist).
7. *Cultivating relationships with School of Education*, PhysTEC Annual Meeting, Atlanta, February 16-18, 2017 (panelist).
8. *Rational design of functional 2D materials*, Donostia International Physics Center, San Sebastian, Spain, January 9-31, 2017 (5 lectures).
9. *Tailoring chemical and optical properties of 2D transition metal dichalcogenides*, 2nd NOOR International Symposium on Applied Materials and Devices, Nilope, Pakistan, November 14-16, 2016.
10. *On computational design of functional 2D transition metal dichalcogenides*, Max Planck Institute Workshop (Abteilung Kern), Schloss Ringberg, Taegernsee, Germany, October 16-19, 2016.
11. *Tailoring properties of 2D transition metal dichalcogenides: looking beyond graphene*, IX International Conference on Surface, Materials and Vacuum, Mazatlán, September 26-30, 2016. (plenary talk)
12. *Time-Dependent Density-Functional Theory with Dynamical Mean-Field Theory: towards ab initio tools for strongly correlated system*, IX International Conference on Surface, Materials and Vacuum, Mazatlán, September 26-30, 2016.
13. *Passion for science*, Materials Science Colloquium, University of Milan, Bicocca, Italy, September 22, 2016.
14. *Tailoring chemical and optical properties of 2D transition metal dichalcogenides*, International Conference on Solid Films and Surfaces (ICSFS18), Chemnitz, August 28-September 2, 2016.
15. *Time-Dependent Density-Functional Theory with Dynamical Mean-Field Theory: towards ab initio tools for strongly correlated and/or out-of-equilibrium systems*, DOE, Theoretical Condensed Matter Physics Pls Meeting, Gaithersburg, August 14-17, 2016.

16. *Reaction mechanisms: interplay of thermodynamics and kinetics*, 2016 DOE Catalysis Science Pls Meeting, Gaithersburg, June 21-24, 2016.
17. *Tailoring properties of 2D transition metal dichalcogenides: looking beyond graphene*, Physics Colloquium, Oulu University, Finland, June 3, 2016.
18. *Tailoring chemical properties of single and bilayer layer transition metal dichalcogenides*, Atomic structure of nanosystems from first-principles simulations and microscopy experiments (AS-SIMEX 2016), Physics Boat Series, Helsinki-Stockholm, May 31 – June 2, 2016.
19. *Tailoring Characteristics of Nanoparticles: size, shape, composition and environment matters*, Institute of Physics Seminar, Aalto University, May 30, 2016.
20. *Can an everyday lubricant be a novel material?* Physics seminar, University of the West Indies, Barbados, May 13, 2016.

A. Schulte (1):

1. *Spectroscopic approaches to stimuli-responsive polymers at variable temperature and pressure*, Greek German Workshop on nano-structured soft materials, Athens, Greece, September 2016.

S. Stolbov (1):

1. *Unusual mechanism of binding of small molecules on the metal doped graphene: electrocatalytic applications*. EMN Meeting on Carbon Nanostructures. (February 19-23, 2017. Orlando, Florida).

S. Tatulian (1):

1. *Structure and Cytotoxicity of Unmodified and Pyroglutamylated Amyloid beta Hetero-Oligomers*. Invited talk at International Conference Biological Physics Mexico City 2017, Frontiers at the interface of Physics, Math and Biology. May 2017, Mexico City.

V. Turkowski (1):

1. *Optical excitations and ultrafast exciton dynamics in 2D transition metal dichalcogenides*, 2nd International Symposium on Science and Technology of 2D Materials, NSTC, University of Central Florida (Orlando, FL, February 2017).

Patents Received by In-Unit Physics Faculty (7)

1. R. G. Blair, *Large Scale Oxidized Graphene Production for Industrial Applications*. US Patent Notice of Allowance Received (May 2017).
2. R. G. Blair, *Heterogeneously Catalyzed Chemical Reduction of Carbon Dioxide*. US Patent 9,624,154, (2017).
3. S. Ghatu and R. G. Blair, *Synthesis and Processing of Ultra High Hardness Boron Carbide*. US Patent 9,604,885 (2017).
4. R. G. Blair, *Retro-aldol reaction products and methods of making and using same*. US Patent 9,573,876 (2017).
5. R. Peale, M. Ishigami, and C. W. Smith, *Plasmonics Phototransistor*. US Patent 9,356,178 B2 (May 31 2016).
6. A. Schulte and S. Arora, *Optical absorbance measurement apparatus, method, and applications*. US US Patent 9,341,515 B2 (July 2016).
7. C. Chamon and E. Mucciolo, *Systems and Methods for Virtual Parallel Computing using Matrix Product States*, US Patent 9,355,363 (May 31, 2016).

Disclosures and Patent Applications by In-Unit Physics Faculty (4)

1. P. Schelling, D. Britt, W. Kaden, W. Tucker, R.G. Blair, and A. Quadery, *Silicate Supported Nanoparticles for Hydrogen Production from Ammonia*. Disclosure filed.
2. R. E. Peale, E. Smith, J. Nath and J. W. Cleary, *Wavelength-selective thermal detection using near perfect absorbers integrated with room-temperature VOx air-bridge bolometers*. Disclosure filed on August 4, 2016.
3. Y. Rudzevich, Y. Lin, and L. Chow. *Capillary Ionic Transistor*. US Patent filed on August 25, 2016.
4. C. Chamon, E. Mucciolo, A. Ruckenstein, and Z.-C. Yang, *Solving Classical Computational Problems by Annealing a Planar Quantum Vertex Model*. US Patent filed on April 5, 2017.

External Funding May 8, 2016 – May 7, 2017 (US \$)

Faculty Member	New Funding	Expenditures
Luca Argenti	\$109,467.00	\$41,996.05
Aniket Bhattacharya	\$0.00	\$1,006.46
Richard Blair	\$62,325.00	\$101,339.41
Julie Brisset	\$93,591.77	\$63,516.31
Daniel Britt	\$973,224.55	\$637,284.83
Humberto Campins	\$188,093.14	\$133,698.43
Zenghu Chang	\$793,020.00	\$1,607,232.63
Bo Chen	\$35,000.00	\$11,733.20
Leonid Chernyak	\$264,400.00	\$272,179.03
Jacquelyn Chini	\$119,972.00	\$59,051.82
Michael Chini	\$125,272.00	\$110,405.27
Joshua Colwell	\$551,499.30	\$332,586.33
James Cooney	\$11,193.80	\$8,105.13
Enrique del Barco	\$148,239.00	\$199,432.15
Joseph Donoghue	\$0.00	\$58,810.69
Adrienne Dove	\$379,313.74	\$164,604.26
Costas Efthimiou	\$0.00	\$380.78
Yanga Fernandez	\$175,471.11	\$113,932.96
Elena Flitsiyan	\$115,130.00	\$122,454.52
Joseph Harrington	\$335,993.00	\$199,896.02
Masahiro Ishigami	\$19,779.50	\$21,773.92
Abdelkader Kara	\$159,957.00	\$116,031.42
Viatcheslav Kokoouline	\$75,000.00	\$60,117.89
Eduardo Mucciolo	\$0.00	\$67,758.58
Robert Peale	\$159,990.00	\$54,424.59
Talat Rahman	\$676,581.00	\$531,382.93
Beatriz Roldan Cuenya	\$0.00	\$281,598.10
Alfons Schulte	\$0.00	\$508.53
Suren Tatulian	\$122,080.60	\$74,488.18
TOTALS:	\$5,694,593.51	\$5,447,730.42

5. Awards

Faculty

Dr. Lee Chow: Inducted into the Florida Chapter of the National Academy of Inventors (November, 2016)

Dr. Adrienne Dove: Susan Mahan Niebur Early Career Award, NASA (May, 2017)

Dr. Talat Rahman: Fellow of the American Vacuum Society (November, 2016)

Dr. Talat Rahman: College of Science Excellence in Research Award (April, 2017)

Dr. Daniel Britt: inducted into UCF's Scroll and Quill Society (April, 2017)

Dr. Enrique del Barco: inducted into UCF's Scroll and Quill Society (April, 2017)

Dr. Joseph Harrington: inducted into UCF's Scroll and Quill Society (April, 2017)

Dr. Zenghu Chang: 2017 Dean's Distinguished Researcher Award (April, 2017)

Dr. Robert Peale: Teaching Research Award, College of Sciences (April, 2017)

Dr. Alfons Schulte: Teaching Research Award, College of Sciences (April, 2017)

Dr. Ahlam Al-Rawi: Teaching Research Award, College of Sciences (April, 2017)

Dr. Abdelkader Kara: Teaching Research Award, College of Sciences (April, 2017)

Dr. Talat Rahman: Research Incentive Award, College of Sciences (April, 2017)

Dr. Joshua Colwell: Research Incentive Award, College of Sciences (April, 2017)

Students

Brian Zamarripa Roman: NSF Graduate Research Fellowship (April, 2017)

Charles Chambeau: Earth and Space Science Fellowship in Planetary Science, NASA (June, 2016)

Jenna Jones: Best poster award, 13th Annual Meeting of the Asia-Oceania Geosciences Society (China, August, 2016)

Zoe Landsman: NASA Space Grant consortium travel award to present at the Asteroids, Comets and Meteorites Meeting in Uruguay (2017).

Zoe Landsman: NASA Travel Award to present at the meeting of Asia-Oceania Geophysical Society (China, August, 2016)

Takat Rawal: Finalist, Graduate Research Award, 63rd Annual Meeting of the American Vacuum Society

Michael Lodge: NSF East Asia and Pacific Summer Institutes Fellowship (Summer, 2016).

Brandon Blue: Naval Research Enterprise Internship Program, American Society of Engineering Education (Summer, 2016).

Rainier Berkley: 2nd best poster award, Annual Conference of the American Society Bridge Program (Maryland, February, 2017).

Ferdinand Torres-Davila and Brian Roman Zamarripa: Travel grant from American Physical Society to attend the APS Graduate Education and Bridge Program Conference (Maryland, February, 2017)