

Friday, January 17, 2020

8 a.m.–10 p.m.	Quiet Room	Curacao 8
8 a.m.–10 p.m.	Lactation Room	Curacao 7
4–7 p.m.	REGISTRATION	Grand Sierra North & South
5:30–7:30 p.m.	AAPT New Board Orientation	Antigua 1-2
7:30–8:30 p.m.	Finance Committee	Antigua 1-2

Saturday, January 18, 2020

7 a.m.–4 p.m.	REGISTRATION	Grand Sierra North & South
8 a.m.–10 p.m.	Quiet Room	Curacao 8
8 a.m.–10 p.m.	Lactation Room	Curacao 7
8–9:30	Publications Committee	Antigua 4
8–9:30	Meetings Committee	Antigua 3

WORKSHOPS ARE AT ROLLINS COLLEGE (BUSH SCIENCE CENTER)

8–5	W01	Arduino Microcontrollers	105 Bio Lab
8–5	W02	Intro to Modeling Instruction, A PER-based Curricula	208
8–12	W03	Ring Flinger (Make & Take)	164
8–12	W06	Using Augmented Reality, Virtual Reality, and Video Games in the Physics Classroom	180
8–12	W07	Updates to AP Physics	210
8–12	W08	PICUP: Integrating Computation into Introductory Physics	202
8–12	W09	From Intro Labs to Senior Theses: Implementing and Assessing Writing Across the Physics Curriculum	212
9–10		SPS Advisor Meet and Greet	Tropicale Restaurant
10–4:30		Board of Directors	Antigua 1-2
10–6		SPS Zone 6 Meeting	Curacao 5
11:30–2:30		Resource Letters Committee	Antigua 3
1–5	W10	The Architecture of GlowScript VPython	212
1–5	W12	Using RTOP to Improve Physics and Physical Science Teaching	210
1–5	W18	Pulsar Search Collaboratory For High School Teachers	310 Comp L
1–5	W19	CMS Collider Physics Masterclass	302
2:30–4:30		Nominating Committee I	Antigua 4
4–5:30		AAPT Tweet-up	The Falls Lounge
4:30–5:30		Section Representative and Officers	Bonaire 4
5:30–6:30		New Chair Orientation	Bonaire 1
6–7		ALPhA Open Meeting	Bonaire 2
6:30–8		Programs and Planning Committee I	Bonaire 1
7:30–9		Evening REGISTRATION	Grand Sierra North & South
8–8:10		Land Acknowledgment	Grand Sierra Foyer
8:10–9		Sacred Thunder Drum and Native Insights	Grand Sierra Foyer
8:10–10		Exhibit Hall Open / Welcome Reception	Grand Sierra D
8:10–10		SPS Undergrad. Research & Outreach Poster Session	Grand Sierra D

Sunday, January 19, 2020

7 a.m.–4 p.m.	REGISTRATION	Grand Sierra North & South	
8 a.m.–10 p.m.	Quiet Room	Curacao 8	
8 a.m.–10 p.m.	Lactation Room	Curacao 7	
7–8	Review Board	Curacao 3	
7–8:30	First Timers' Gathering	Antigua 3-4	
7–8:30	Two-Year College Breakfast	Curacao 5	
8–9	Executive Programs Committee	Curacao 4	
8–9	Committee on Governance Structure (COGs)	Curacao 6	
8–12	W20	Improving Pedagogical Content Knowledge	210
8–12	W21	Trinket Workshop: Teach with Code	180
8–12	W22	Computational Physics in Introductory Physics Courses	301 Comp L
8–12	W23	STEP UP	212

3–4:40	DG	PER: Assessment, Grading and Feedback	Bonaire 3-4
3–4:40	DH	Lessons Learned from Integrating Computation into Undergraduate Physics Courses	Antigua 1-2
3:30–5	DK	Resistance & Resilience: How We Show up for Ourselves When we are the Only__ in the Room	Bonaire 5-6
3:30–4:30		K-12 Resource Room: STEP UP	Curacao 2
4–5	DI	Training Newcomers to Lab Instruction	Bonaire 7
4–5	DJ	Professional Development at HSI's	Hibiscus
4:30–5		K-12 Resource Room: Feedback Session	Curacao 2
5–6:30		Graduate Education in Physics Committee	Curacao 3-4
5–6:30		Educational Technologies Committee	Bonaire 7
5–6:30		History & Philosophy of Physics Committee	Antigua 1-2
5–6:30		Physics in Two-Year Colleges Committee	Antigua 3-4
5–6:30		PERLOC	Curacao 6
5–6:30		Science Education for the Public Committee	Bonaire 5-6
5–6:30		Space Science and Astronomy Committee	Curacao 5
5:30–7		SPS Undergraduate Awards Reception	Grand Sierra C
6:30–8:20	EA	Outreach Programs Connecting College and K-12	Grand Sierra F
6:30–8:30	EB	Integrating Outreach into the Student Experience	Bonaire 7-8
6:30–8:30	EC	Four Current Space Missions Making History	Grand Sierra G
6:30–7:30	ED	Student-driven Inquiry	Grand Sierra H
6:30–7:50	EE	Teacher Training/Enhancement	Grand Sierra I
6:30–8:30	EF	Physics in Environmental Science	Bonaire 1-2
6:30–8	EG	Increasing African American Bachelor's Degrees in Physics and Astronomy: Results from the National TEAM-UP study	Bonaire 3-4
7:30–8:30	EH	Student Harassment and Intimidation of Faculty	Antigua 1-2
7:30–9	EI	Critical Methodologies & Intersectionality Frameworks in Research	Antigua 3-4
7–8:30		Awards Committee	Grand Sierra A
8:30–10		Poster Session 2	Grand Sierra D

Tuesday, January 21, 2020

7–8:30		Programs and Planning Committee II	Curacao 3-4
7:30–8:30		PERTG Town Hall Meeting	Grand Sierra E
8 a.m.–10 p.m.		Quiet Room	Curacao 8
8 a.m.–10 p.m.		Lactation Room	Curacao 7
8 a.m.–3 p.m.		REGISTRATION	Grand Sierra North & South
8:30–9:10	FA	Astronomy Education Research	Grand Sierra F
8:30–9:30	FB	Effective Practices in Educational Technology	Grand Sierra G
8:30–9:30	FC	Middle School Modeling	Grand Sierra H
8:30–10:10	FD	PER Using Institutional Data Sources and Big Data Research Methods	Grand Sierra I
8:30–9:30	FE	Academic Advising and Retention of Physics Majors	Antigua 3-4
8:30–10:30	FF	Recruitment and Retention of Female Students in Physics	Bonaire 5-6
8:30–10:30	FG	Introductory Physics for the Life Sciences (IPLS)	Bonaire 1-2
9:30–12		SEES – Students Exploring Engineering and Science	Grand Sierra AB
10:30–12:30		AWARDS: Oersted Medal, Melba Newell Phillips Medal, Presidential Transfer, AIP Science Writing Award–Book signing	Grand Sierra E
12:30–2:20	GA	Interactive Lecture Demonstrations: A Research-Validated Strategy to Improve Learning in Lecture	Grand Sierra F
12:30–1:30	GB	Virtual Reality, Augmented Reality, Drones, and other Emerging Technologies in Higher Ed.	Grand Sierra G
12:30–2:20	GC	PER: Student Content Understanding, Problem-Solving and Reasoning	Grand Sierra H
12:30–1:50	GD	Teaching and Engaging Students at HSI's	Grand Sierra I
12:30–1	GE	Physics Majors: High School to Doctorate	Bonaire 5-6
12:30–1:10	GF	Upper Division Undergraduate	Bonaire 1-2
12:30–1:30	GG	Theory Meets Practice	Bonaire 3-4

8–12	W24	Fun and Engaging Labs	164
8–12	W25	Coding Integration in High School Physics Courses	308
8–12	W26	Teaching Introductory Physics in an Earth & Space Science Context	202
8–12	W27	Fun, Engaging, Effective, Research-Validated Lab Activities and Interactive Lecture Demos for Introductory Physics	310 Comp L
8–12	W28	PICUP: Integrating Computation into Upper-Level Physics	208
8:30–4:30		Visit and Explore Kennedy Space Center	offsite
9–10		Membership & Benefits Committee	Curacao 3
9–10		K-12 Resource Room: Digikit Resources	Curacao 2
10–11:30		Physics in High Schools Committee	Grand Sierra F
10–11:30		Apparatus Committee	Grand Sierra G
10–11:30		Physics in Undergraduate Education Committee	Grand Sierra H
10–11:30		Contemporary Physics Committee	Grand Sierra I
10–11:30		Diversity in Physics Committee	Grand Sierra C
10–11:30		Professional Concerns Committee	Bonaire 3-4
10–2		SEES Volunteer Training	Boca 1
10–5		Exhibit Hall Open	Grand Sierra D
10–10:30		Exhibit Hall Break	Grand Sierra D
10:20–10:30		Exhibit Hall Raffle: Celestron 70EQ Telescope	Grand Sierra D
11–12	CW07	Introducing Pivot Interactives from Vernier	Curacao 6
12–1	CW01	Expert TA Workshop	Hibiscus
12–1	CW02	CogBooks – Personalizing Introductory Physics Instruction with Machine Learning	Bonaire 1-2
12–1	CW08	Vernier Video Analysis on Chromebooks, Computers, and Tablets	Curacao 6
12–1:30		Retired Physicists Luncheon	Tropicale Restaurant
12–1:30		Early Career and First Timers Social	Tropicale Restaurant
12–1:30		Multicultural / LGBTQ Community Meetup	Calypto's Pool Bar & Grille
12:30–1:30		K-12 Resource Room: Get the Facts Out	Curacao 2
1:30–3	AA	PTRA Making Fields Real and Teaching Modern Physics	Grand Sierra C
1:30–3	AB	Applications of Deep Learning in Undergraduate Physics	Grand Sierra F
1:30–3	AC	21st Century Physics in the Classroom	Grand Sierra G
1:30–3:20	AD	PER from Around the World	Grand Sierra H
1:30–3:10	AE	Perspectives on Environmental Science and Physics	Grand Sierra I
1:30–3	AH	Inclusive Communication 101	Bonaire 7-8
1:30–3		K-12 Resource Room: Local Teacher Gathering	Curacao 2
3–3:50	AF	SPS Undergraduate Oral Talks	Bonaire 1-2
3–3:50	AG	Introductory Labs/Apparatus	Bonaire 3-4
3–4:30	BA	PTRA: Helping First Year and Pre-Service Teachers	Antigua 1-2
3–4:50	BB	Advanced Labs (esp. Contemporary Physics or Stat/Thermo)	Antigua 3-4
3–3:30		Sunday Afternoon Break in the Exhibit Hall	Grand Sierra D
3:20–3:25		Exhibit Hall Raffle: Gskyer Telescope	Grand Sierra D
3–4		K-12 Resource Room: Science is Elementary	Curacao 2
3:30–5:10	BC	21st Century Physics in the Classroom II	Grand Sierra F
3:30–5:10	BD	PER: Curriculum and Instruction	Grand Sierra G
3:30–5:30	BE	How do YOU Outreach?	Grand Sierra H
3:30–4:30	BK	Seeking Sustainable Development of Open-Source Educational Technology	Grand Sierra I
4–5:30	BF	Communicating Across Difference: Strategies for Navigating Complex Contexts	Grand Sierra C
4:30–5:30	BG	Success Stories of Female Physicists	Bonaire 1-2
4:30–5:30	BH	Role of Technical Competency in Undergrad. Physics Educ.	Hibiscus
5:30–6:30	BI	Statistical Physics and Thermodynamics	Grand Sierra I
5:30–6:30	BJ	30 Demos in 60 Minutes	Antigua 1-2
4–5		K-12 Resource Room: The Underrepresentation Curriculum	Curacao 2
4–5:30		Developments in the International System of Units (SI), Peter Mohr	Grand Sierra A
4:30–6		SPS Undergraduate Meet & Greet	Boca 1

12:30–2:30	GH	Reaching Learners Where They Are: Bringing Science to Hospitals, Prisons and Podcasts	Bonaire 5-6
12:30–2:30	GI	Professional Skills for Students	Curacao 3-4
2:30–4:10	HA	Post Deadline Abstracts	Bonaire 3-4
2:30–3		SM2020 Paper Sort	Antigua 1-2
2:30–4		Post Deadline Poster Session	Grand Sierra Foyer
3–5		Board of Directors	Antigua 1-2

Bus Schedule for Workshops

Saturday, January 18

Buses departing Caribe Royale Hotel and dropping off at Rollins College

- 7:15 a.m.
- 7:20 a.m.
- 7:25 a.m.
- 12:15 p.m.
- 12:25 p.m.

Buses departing Rollins College and returning to the Caribe Royale Hotel

- 12:15 p.m.
- 12:45 p.m.
- 1 p.m.
- 5:15 p.m.
- 5:30 p.m.
- 5:45 p.m.

Caribe Royale
8101 World Center Drive
Orlando, FL 32821

Sunday, January 19

Buses departing Caribe Royale Hotel and dropping off at Rollins College

- 7:15 a.m.
- 7:25 a.m.

Buses departing Rollins College and returning to the Caribe Royale Hotel

- 12:20 p.m.
- 12:30 p.m.

Rollins College
Department of Physics
1000 Holt Avenue – 2743
Winter Park, FL 32789

Local Orlando Attractions

Buses will depart on the hour and run a continuous loop from the hotel to attractions from 6:30 pm–11:30 pm, with final pickup at 11 pm from venue.

Bus location: Convention Center Porte-Cochere

- **Universal City Walk** on Monday, January 20, 6:30 pm–11:30 pm (last pickup at Universal City Walk back to hotel will be at 11:00 pm)
- **Disney Springs** on Tuesday, January 21, 6:30 pm–11:30 pm (last pickup at Disney Springs back to hotel will be at 11:00 pm)

Get the Meeting App Today!

- Download the CrowdCompass AttendeeHub from your Apple "App" store or Android "Play" store.
- Once the app is downloaded, search for AAPT.
- Password: aapt2020

Event URL: <https://crowd.cc/wm20>
App URL: <https://crowd.cc/s/3EZli>



Wireless Complimentary for Caribe Royale Orlando Hotel:

Network: **aapt** Password: **aaptwm20**

5:30–6:30	Venture Fund Review Committee	Curacao 4
6:45–7:45	PLENARY: Jonathan Smith, SeaWorld Parks	Grand Sierra E
8:30–10	Meeting of the Members	Grand Sierra E
9–midnight	Game Room	Grand Sierra B

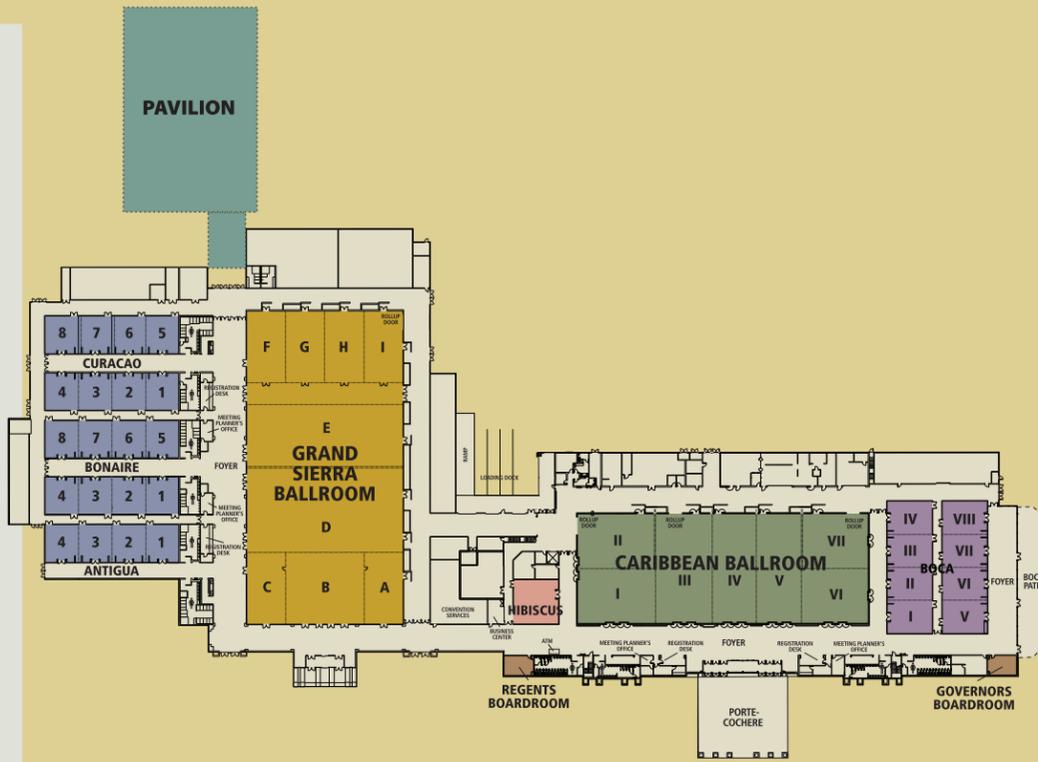
Monday, January 20, 2020

7 a.m.–5 p.m.	REGISTRATION	Grand Sierra North & South
8 a.m.–10 p.m.	Quiet Room	Curacao 8
8 a.m.–10 p.m.	Lactation Room	Curacao 7
7–8:30	PTRA Oversight Committee	Grand Sierra C
7–8:30	Laboratories Committee	Bonaire 8
7–8:30	International Physics Education Committee	Antigua 1-2
7–8:30	Research in Physics Education Committee	Antigua 3-4
7–8:30	Investment Advisory Committee	TB
7:30–8:30	Physics Bowl Advisory Committee	Grand Sierra F
8:30–10	Physics in Pre-High School Education Committee	Curacao 5
8:30–10	Teacher Preparation Committee	Curacao 6
8:30–10	Women in Physics Committee	Bonaire 1-2
8:30–10	Interests of Senior Physicists Committee	Grand Sierra G
10 a.m.–4 p.m.	Exhibit Hall Open	Grand Sierra D
10:15–11:15	PLENARY – Jim Gates, Brown University	Grand Sierra E
10:30–11:30	K-12 Resource Room: The Question Formulation Technique	Curacao 2
11:15–11:45	Break in Exhibit Hall / Jim Gates Book Signing: <i>Proving Einstein Right: The Daring Expeditions that Changed How We Look at the Universe</i>	Grand Sierra D
11:30–11:35	Exhibit Hall Raffle: Celestron 127EQ Telescope	Grand Sierra D
11:30–1:30	CA Zooniverse: Intro. Workshop for the Classroom Module	Grand Sierra C
11:30–12:40	CB Assessing the Effectiveness of Demonstrations	Grand Sierra F
11:30–12:50	CC Introductory Courses	Grand Sierra G
11:30–12:50	CD High School	Grand Sierra H
11:30–1:30	CE Best Practices in Educational Technology	Grand Sierra I
11:30–1:10	CF PER: Diversity, Equity & Inclusion	Bonaire 1-2
11:30–1	CG Physics and Art	Bonaire 3-4
11:30–1	CH Physics Education Conference from Around the World	Antigua 1-2
11:30–12	CI Education Research Meets Contemporary Physics	Antigua 3-4
11:30–12	CK Bringing the Stars Into the Classroom	Hibiscus
11:30–1	CL Communicating Across Difficulty: Navigating Identity & Conflict	Bonaire 7
11:30–12:30	CW03 PASCO scientific: Advanced Circuits Made Easy: Modular Circuits	Curacao 3-4
11:30–12:30	K-12 Resource Room: PTRA Information Session	Curacao 2
11:30–12:30	SPS: Outreach - Effective Practices for Undergraduates	Boca 1
12:30–1:10	CJ Technologies	Hibiscus
12:30–1:30	CW06 Spreadsheet Lab Manual LLC (SLM)	Grand Sierra A
1–2	CW04 PASCO scientific: Advanced Optics Workshop	Curacao 3-4
1:30–2:30	K-12 Resource Room: Digikit Resources	Curacao 2
1:30–2:30	SPS: Effective Undergraduate Departments	Boca 1
1:30–3	Poster Session 1	Grand Sierra D
2:30–3:30	CW05 PASCO scientific: Smart Cart Workshop	Curacao 3-4
2:30–3:30	K-12 Resource Room: Flipping the Physics Classroom	Curacao 2
3–3:30	Afternoon Break in Exhibit Hall	Grand Sierra D
3:20	Exhibit Hall Raffle: Nintendo Switch Lite	Grand Sierra D
3–4:10	DA Introducing Computation in Physics Classes	Grand Sierra C
3–5	DB Get the Facts Out: Physics Teacher Recruitment	Grand Sierra F
3–3:50	DC Introductory Physics II	Grand Sierra G
3–5	DD History of NASA	Grand Sierra H
3–5	DE How to Start Your Undergraduate Program with Contemporary Physics	Grand Sierra I
3–4:30	DL Student Topical Discussion and Social	Grand Sierra A
3–4:40	DF Physics Specific Pedagogy Courses	Bonaire 1-2

2020 AAPT Winter Meeting at a Glance



Caribe Royale Orlando Hotel Maps



AAPT 2020 WINTER MEETING PHYSICS EDUCATION®

January 18-21 Orlando, FL

Rollins College Map

Exhibit Hall Grand Sierra Ballroom D

POSTERS			
116	119	218	217
114	117	216	215 Society of Physics Students
110 AAPT	113 AIP	212 APS Public Engagement	213 Fourth Law Labs
108 AAPT Publications	111 Quantum Experience	210 Arbor Scientific	211 Spreadsheet Lab Manual
106 CogBooks			209 University Science Books
102 Teachspin			207 Exploring The Invisible Universe
101 Expert TA	105 PASCO	204 Vernier Software & Technology	205 eScience Labs
			203 Cengage

Two Entrance Doors



POSTER SESSION TIMES – Grand Sierra D

- PST1: Monday, 1:30–3 p.m. (posters available from 8 a.m.–3 p.m.)
- PST2: Monday, 8:30–10 p.m. (posters available from 4 p.m.–10 p.m.)
- PST3: Tuesday (Foyer), 2:30–4 p.m. (posters available from 8 a.m.–4 p.m.)

HOURS FOR EXHIBIT HALL

- Saturday: 8:10–10 p.m.
- Sunday: 10 a.m.–5 p.m.
- Monday: 10 a.m.–4 p.m.