

**CAARI 2018 SCHEDULE OF EVENTS - SUNDAY, AUGUST 12, 2018**

<b>12:00 - 5:00 pm</b>	<b>Onsite Registration &amp; Information Desk Open</b>	<b>Grapevine Pre-Function</b>
<b>6:00 - 8:00 pm</b>	<b>Welcome Reception</b>	<b>Grapevine Ballroom A/C</b>

## CAARI 2018 SCHEDULE OF EVENTS - MONDAY, AUGUST 13, 2018

7:00 AM - 4:00 PM	<b>Onsite Registration Open</b>	<b>Grapevine Pre-Function</b>
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7:00 AM	<b>Breakfast</b>	<b>Grapevine Ballroom A/C</b>
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8:45 AM	<b>Welcome and Conference Opening</b>		<b>Grapevine Ballroom B</b>
Speaker	Mary Hockaday	Opening remarks by LANL Associate Director	

<b>Plenary Sessions</b>			<b>Grapevine Ballroom B</b>
	<b>PS-01</b>	AB	
9:15 AM	Joel England	# 381	Applications for a Laser-Driven Accelerator on a Chip

10:00 - 10:30 AM	<b>Break</b>	<b>Grapevine Ballroom</b>
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10:00 AM - 8:00 PM	<b>Vendor Exhibit</b>	<b>Grapevine Ballroom A/C</b>
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<b>General Sessions</b>			
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<b>AMP-02</b>			<b>Title: Physics of Molecules</b>	<b>Grapevine 1</b>
		AB	<b>Chair: Michael Schulz</b>	
10:30 AM	Daniel Fischer	# 211	Fully-differential and initial-state selective studies of single ionization in ion-lithium collisions	
10:55 AM	Jefferson L Shinpaugh	# 301	Experimental and computational study of gold nanoparticles as a radiosensitizer for ion radiation	
11:20 AM	Sebastian Otranto	# 46	The role of multiple electron processes for fast ion H <sub>2</sub> O collisions	
11:40 AM	Vola M Andrianarijaona	# 164	Measured Absolute Cross Section of Charge Transfer in D <sub>2</sub> <sup>+</sup> + H between 2 keV/u – 10 keV/u	
12:00 PM	Lucas Sigaud	# 151	Fragmentation pathways following ionization of Water molecule by electron impact	

<b>NST-04</b>			<b>Title: Focused Ion Implantation for Novel Device Fabrication – II</b>	<b>Grapevine 2-3</b>
		AB	<b>Chair: Edward Bielejec</b>	
10:30 AM	Edward Bielejec	# 32	Fabrication of Single Atom Devices by Direct Write Nanofabrication	
10:55 AM	Roger Paul Webb	# 309	Statistics of Deterministic Single Ion Implantation	
11:10 AM	Peter Sharma	# 198	Two-axis control of a coupled quantum dot – donor qubit in Si-MOS	
11:35 AM	Satyabrata Singh	# 213	Simulation and Experimental Analysis of Fe and Co implanted Si Nano wires	
11:50 PM	Sviatoslav Ditalia Tchernij	# 132	Ion-beam fabricated optically active color centers in diamond for quantum optics and quantum-enhanced sensing	
12:15 PM	Joseph Klingfus	# 373	Advanced Applications in Nanoscale Device Fabrication Enabled by Novel Focused Ion Beam Instrumentation	

## CAARI 2018 SCHEDULE OF EVENTS - MONDAY, AUGUST 13, 2018

IA-02			Title: Energy and Environmental Applications	Austin 1-2
		AB	Chair: Salime Boucher	
10:30 AM	Robert Garnett	# 56	Accelerator Technology for Large-Scale Energy Production	
11:00 AM	Holger Hoeltermann	# 184	Development Status of the Myrrha Injector	
11:15 AM	Abdellatif Yacout	# 230	Applications of Heavy Ion Linear Accelerator for Studies of Radiation Effects in Nuclear Fuel and Structural materials	
11:45 AM	Rodolphe Antoni	# 3	Reduction of the uncertainty due to fissile clusters in radioactive waste characterization with the Differential Die-away Technique	
12:00 PM	Todd A. Byers	# 249	PIXE Analysis of Dust in Rainwater Collected on Polystulfone Filters	
12:15 PM	Kyumin Choe	# 359	Pulsed hydrogen cold-cathode Penning ion source with high monatomic fraction and high current in stable operation	

ISM-02			Title: Helium Ion Interactions with Functional Materials	Austin 5-6
		AB	Chair: V. Shutthanandan	
10:30 AM	Thomas Zac Ward	# 34	Strain Doping in Functional Oxides	
11:00 AM	Alex Belianinov	# 50	Polarization Control via He-ion Beam Induced Nanofabrication in Layered Ferroelectric Semiconductors	
11:30 AM	Sybren Sijbrandij	# 195	High Resolution Inert-Gas Bombardment Microscopy, Nanofabrication and Secondary Ion Mass Spectrometry: Recent Results from ZEISS ORION NanoFab	
12:00 PM	Gregor Hlawacek	# 215	Helium and Emerging Focused Ion Beams	

TA-03			Title: Undergraduate Education in the Accelerator Laboratory	Ft. Worth 3-4
		AB	Chair: Sally Hicks	
10:30 AM	Alis Rodriguez Manso	# 31	Implementing PIXE and PIGE at the Texas A&M University Cyclotron Institute	
10:54 AM	Akaa Daniel Ayangeakaa	# 67	The Naval Academy Accelerator Facility	
11:18 AM	Anthony Paul Ramirez	242	Undergraduate Education at the University of Kentucky Accelerator Laboratory	
11:42 AM	Dan Marble	# 84	An Inexpensive XRF Lab for Undergraduates and Other Educational Activities at Tarleton's Nuclear Laboratory	
12:06 PM	Amber Johnson	# 259	Cyclotrons and Their Design – an Undergraduate Education	

SD-02			Title: Detectors for Accelerator-Based Security and Defense - I	Ft. Worth 6-7
		AB	Chair: Willem G.J. Langeveld	
10:30 AM	Alan Janos	# 341	Advanced Detector Materials for Accelerator-Based Security and Defense	
11:00 AM	Kanai Shah	# 14	New Detectors for High Energy Radiography	
11:30 AM	Andrew Glenn	# 272	Advances in Solid Organic Scintillators for Wide Energy Range Neutron Detection	
12:00 PM	Cameron A. Miller	# 267	Mitigation of Photon Active Interrogation Background for Fast Neutron Detection	
12:20 PM	Calvin Moss	# 39	Development of a Portable Active Interrogation System for Characterizing Special Nuclear Material	

## CAARI 2018 SCHEDULE OF EVENTS - MONDAY, AUGUST 13, 2018

12:30 -  
2:00 PM

Lunch

Grapevine Ballroom  
A/C

RE-05		Title: Radiation Effects in materials for Fission Applications		Grapevine 1
		AB	Chair: Samuel Briggs	
2:00 PM	Yanwen Zhang	# 226	Radiation Effects in Concentrated Solid Solution Alloys	
2:30 PM	Zefeng Yu	# 162	Atom probe tomography study on irradiation induced Nb redistribution in ZrNb alloys	
2:45 PM	Maulik Patel	# 207	Radiation effects in ceramic composite	
3:15 PM	Joseph Graham	# 149	Radiation Enhanced Xenon Diffusion in Yttria Stabilized Zirconia at High Temperatures	

IBTM-02		Title: Cultural Heritage/Forensic Science		Grapevine 2-3
		AB	Chair: Melanie Bailey	
2:00 PM	Iva Bogdanovic Radovic	# 181	Application of MeV SIMS for forensic document examination	
2:30 PM	Karen Jacqueline Cloete	# 11	A match made in heaven: Forensic hair screening with ion beam analysis	
3:00 PM	Žiga Šmit	# 49	Archaeometry with ion beams – application on the objects from the 1 <sup>st</sup> millennium BC	
3:20 PM	Holly-May Lewis	# 58	Analysis of Forensic Traces using Direct Analyte-Probed Nanoextraction Mass Spectrometry (DAPNe-MS) and Ion Beam Analysis (IBA)	

TD-04		Title: Ultra-Compact and Mini Accelerators		Austin 1-2
		AB	Chair: Arun Persaud	
2:00 PM	Roman Kostin	# 33	A Portable X-ray Source based on Dielectric Accelerators	
2:30 PM	Roman Kostin	# 35	Inexpensive Brazeless Accelerator Prototype	
2:50 PM	Roman Kostin	# 36	High Shunt Impedance Accelerating Structure with Distributed Microwave Coupling	
3:10 PM	Thomas Schenkel	# 206	A compact RF-based ion accelerator	

SP-02		Title: Neutrino Physics		Austin 5-6
		AB	Chair: Alfredo Galindo-Uribarri	
2:00 PM	Alfredo Galindo-Uribarri	# 322	PROSPECT, A Precision Reactor Oscillation and SPECTrum Short-Baseline Antineutrino Experiment	
2:30 PM	Corey Gilbert	# 350	Characterization of Stray Magnetic Fields Near the PROSPECT Detector	
2:55 PM	Austin McDonald	# 394	Barium Tagging with Single Molecule Fluorescence Imaging for Neutrinoless Double Beta Decay	

## CAARI 2018 SCHEDULE OF EVENTS - MONDAY, AUGUST 13, 2018

<b>TA-09</b>			<b>Title: The Relevance of Electrostatic Accelerators in Industrial and Research Applications and Recent Developments at NEC</b>	<b>Ft. Worth 3-4</b>
			<b>Chair: Eric Alderson (NEC)</b>	
2:00 PM			Class/Workshop	

<b>ISM-01</b>			<b>Title: In situ and 3D Analysis of Irradiation Induced Changes in Microstructure of Materials</b>	<b>Ft. Worth 6-7</b>
		AB	<b>Chair: Arun Devaraj</b>	
2:00 PM	Osman El Atwani	# 123	In-situ irradiation tolerance investigation of nanocrystalline W-Ti-Cr-V high entropy and T-TiC alloys	
2:25 PM	Khalid Hattar	# 138	Exploring the Interplay Between Grain Boundaries and Radiation Damage	
2:50 PM	Jin Li	# 293	Irradiation response of twin boundaries in face-centered cubic metals with low stacking fault energy	
3:15 PM	Anand Pathak	# 65	Radiation-Induced Effects on Contact Angle and Field Emission of Vertically Aligned Silicon Nanowires	

<b>3:30 - 4:00 PM</b>	<b>Break</b>			<b>Grapevine Ballroom A/C</b>
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<b>IBTM-03</b>			<b>Title: IBA of Samples Exposed to Extreme Environments</b>	<b>Grapevine 1</b>
		AB	<b>Chair: Caitlin Taylor</b>	
4:00 PM	Joseph Graham	# 148	Correlation between Cr <sup>3+</sup> Luminescence and Oxygen Vacancy Disorder in SrTiO <sub>3</sub> under MeV Ion Irradiation	
4:30 PM	Khalid Hattar	# 337	Progress in Coupling Electron Microscopy and Ion Beam Induced Luminescence	
5:00 PM	Thomas Schenkel	# 241	Materials modification with ion pulses from laser-plasma acceleration	
5:15 PM	Caitlin Anne Taylor	# 345	Development of ERD Technique for Quantifying Light Isotope Concentrations in Irradiated TPBAR Materials	

<b>NST-03</b>			<b>Title: Focused Ion Implantation for Novel Device Fabrication – I</b>	<b>Grapevine 2-3</b>
		AB	<b>Chair: Edward Bielejec</b>	
4:00 PM	Takeshi Ohshima	# 62	Creation of silicon vacancy in silicon carbide device by proton beam writing toward quantum applications	
4:20 PM	Georgy V. Astakhov	# 72	Engineering and coherent control of defects in silicon carbide	
4:40 PM	Joseph P Heremans	# 200	Point defect creation using strain-sensitive x-ray imaging for quantum technologies	
5:00PM	Jeffrey McCallum	# 171	Single Photon Sources in SIC with Applications in Quantum Technologies	
5:20 PM	Matthew Trusheim	# 396	Scalable Nanoscale Patterning of Quantum Emitters in Diamond via Focused Ion Beam	

## CAARI 2018 SCHEDULE OF EVENTS - MONDAY, AUGUST 13, 2018

<b>SP-08</b>		<b>Title: Nuclear Spectroscopy</b>		<b>Austin 5-6</b>
		AB	<b>Chair: Lukas Zavorka</b>	
4:00 PM	Philip J Voss	# 193	Doppler-Shift Attenuation Lifetime Measurement of <sup>36</sup> Ar with the TIGRESS Integrated Plunger	
4:23 PM	Umesh Silwal	# 76	High eff. β-decay study of <sup>75</sup> Ga and structure of <sup>75</sup> Ge nuclei	
4:45 PM	Mustafa M Rajabali	# 169	The next generation neutron detector for the studies of exotic nuclei	
5:07 PM	Leyton Brenner	# 160	Detection of Selenium in Soil Samples Using Photon Activation Analysis	

<b>TA-02</b>		<b>Title: Undergraduate Education and Experiments with Accelerators - II</b>		<b>Ft. Worth 3-4</b>
		AB	<b>Chair: Scott LaBrake</b>	
4:00 PM	Heather C Watson	# 199	Diffusion in sulfide and sulfate minerals with planetary applications	
4:20 PM	Daryush ILA	# 121	Ion beam-based projects for undergraduate students	
4:40 PM	Michael F Vineyard	# 111	PIXE Analysis of Synthetic Turf	
5:00 PM	Andrew Roberts	# 80	Undergraduate research with a 400 KeV Accelerator	

<b>SD-05</b>		<b>Title: Software and Simulation for Security and Defense</b>		<b>Ft. Worth 6-7</b>
		AB	<b>Chair: Cody Wilson &amp; Makato Asai</b>	
4:00 PM	Denis Dujmic	# 247	Automated container inspection for 100% screening	
4:25 PM	R.A. Reed	# 399	Applications of MRED for Predicting Single Event Effects	
4:50 PM	Luke Maloney	# 294	Performance of a sparse-data tomography algorithm for active cargo interrogation	
5:05 PM	Monia Kazemeini	# 90	Integration of CZT and CLYC Radiation Detectors into Robotic Platforms using ROS	
5:20 PM	Michael King	# 333	Cloud-Based Radionuclide Source Injection for Real-Time Training Dataset Generation	

<b>6:00 - 7:30 PM</b>	<b>Poster Session 1</b>	<b>All Posters - list available on pages 24-26</b>	<b>Grapevine Ballroom</b>
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## CAARI 2018 SCHEDULE OF EVENTS - TUESDAY, AUGUST 14, 2018

7:00 AM - 4:00 PM	<b>Onsite Registration Open</b>	<b>Grapevine Pre-Function</b>
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7:00 AM	<b>Breakfast</b>	<b>Grapevine Ballroom A/C</b>
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<b>Plenary Sessions</b>			<b>Grapevine Ballroom B</b>
	<b>PS-02</b>	AB	
8:00 AM	Jonathon Farr	# 368	New Horizons in Particle Therapy Systems
8:45 AM	Kate Scholberg	# 374	Illuminating the Nucleus with Neutrinos

9:30 - 10:00 AM	<b>Break</b>	<b>Grapevine Ballroom A/C</b>
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10:00 AM - 8:00 PM	<b>Vendor Exhibit Open</b>	<b>Grapevine Ballroom A/C</b>
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### General Sessions

<b>AMP-01</b>			<b>Grapevine 1</b>
			<b>Title: Physics of Atoms</b>
	AB		<b>Chair: Javier Miranda</b>
10:00 AM	Ruitian Zhang	# 30	High-resolution charge exchange x-ray emission in Ne <sup>8+</sup> - Kr collisions at solar wind velocities
11:00 AM	Jose L. Pacheco	# 304	Modeling ion-neutral collisions using 'universal' scattering for drifting plasmas or ion beams in PIC-DSMC codes
11:15 AM	Débora Nunes Barros de Vasconcelos	# 61	Ultrafast dissociation of the CD <sub>2</sub> Cl <sub>2</sub> and CH <sub>2</sub> Cl <sub>2</sub>
11:30 AM	Pooja Singh	# 391	Ion recoil laser driven by surface plasmons
11:45 AM	Shivcharan Verma	# 19	M X-ray production cross sections of <sup>78</sup> Pt, <sup>79</sup> Au, <sup>82</sup> Pb and <sup>83</sup> Bi using C <sup>3+</sup> and Si <sup>3+</sup> ions

<b>MA-03</b>			<b>Grapevine 2-3</b>
			<b>Title: Clinical Progress with Hadrons and Start-up Logistics for New Treatment Facilities</b>
	AB		<b>Chair: Haibo Lin &amp; Zelig Tochner</b>
10:00 AM	Brahim Mustapha	# 364	Prospects for an Advanced Heavy Ion Therapy Center in the Chicago Area
10:30 AM	Haibo Lin	# 321	Preparation for facility startup - experience at the New York Proton Center
11:00 AM	Heng Li	# 371	Intensity Modulated Proton Therapy for lung cancer patients
11:30 AM	Shinya Matsuda	# 307	Toshiba ESS's contribution and future vision for the cancer therapy technology

## CAARI 2018 SCHEDULE OF EVENTS - TUESDAY, AUGUST 14, 2018

TD-03		Title: Emerging Accelerator Technologies - II		Austin 1-2
		AB	Chair: Thomas Schenkel	
10:00 AM	Maria Katharina Weikum	# 188	EuPRAXIA – a Compact, Cost-Efficient Particle and Radiation Source	
10:20 AM	Choong-Un Kim	# 157	Exploration of Electrochemical Processes for Creating Nb <sub>3</sub> Sn Thin Films via Bronze Route	
10:40 AM	Peter McIntyre	# 127	Superconducting Cable-in-Conduit: Enabling Technology for Industrial Applications	
11:00 AM	Shreyas Balachandran	# 141	Bronze routes that facilitate Nb <sub>3</sub> Sn superconducting cavity technology	
11:20 AM	Thomas Schenkel	# 352	Intense, pulsed ion beams for materials research	

AS-01		Title: Accessing the National Labs and Technology Transfer		Austin 5-6
		AB	Chair: Cherri Schmidt	
10:00 AM	Cherri J Schmidt	# 370	Update on DOE's Accelerator Stewardship Program	
10:10 AM	Elsie Quate-Randall	# 290	Spinning out and in: Technology Commercialization at Berkeley Lab	
10:30 AM	Eli Levine	# 270	DOE's Technologist in Residence (TIR) Program	
10:50 AM	Antonio Redondo	# 281	Accessing Los Alamos National Neutron Science Center (LANSCE) and Technology Transfer at Los Alamos	
11:10 AM	Gregory Halder	# 268	5 things to know about working with Argonne National Laboratory	
11:30 AM	Thomas K Kroc	# 300	Exploring your ROI with A2D2 at Fermilab	

NBAT-01		Title: Nuclear Based Analysis		Ft. Worth 3-4
		AB	Chair: Philip Cole	
10:00 AM	Douglas P Wells	# 320	Photon Activation Analysis and Fundamental Problems in Nuclear Physics	
10:40 AM	Mayir Mamtimin	# 156	Elemental Analysis of Jade Stones using Photon Activation Analysis	
11:00 AM	Zaijing Sun	# 13	A Novel Equation for Activity Calculation in Pulse Irradiation	
11:20 AM	Faisal Mohammed Alrumayan	# 16	Detection of the Counterfeited Sildenafil Tablets Using Neutron Activation Analysis	
11:40 AM	Zaijing Sun	# 303	Determining Trace Elements in Cotton Seeds with Instrumental Neutron Activation Analysis (INAA)	

SP-06		Title: Nuclear Reactions I		Ft. Worth 6-7
		AB	Chair: Anna Hayes	
10:00 AM	Mike Heffner	# 159	The fissionTPC	
10:22 AM	Jenifer Shafer	# 55	The Dependence of Fission Mass Yields On The Nuclear Structure Of The Compound Nucleus	
10:44 AM	Shakilur Rahman	# 4	Photonuclear cross-section and yields of <sup>100</sup> Mo(g,x) <sup>99</sup> Mo, <sup>100</sup> Mo(g,np) <sup>98</sup> mNb, and <sup>59</sup> Co(g,xn; x=1-4) <sup>58-55</sup> Co reactions with intermediate bremsstrahlung energies from electron linac	
10:59 AM	Matthew Gooden	# 139	Energy Dependence of Fission Product Yields for <sup>235</sup> U, <sup>238</sup> U, and <sup>239</sup> Pu with Monoenergetic Neutrons Between Thermal and 14.8 MeV	
11:21 AM	Edward David Davis	# 287	The Oklo natural fission reactors and improved limits on the variation in fine structure constant	
11:43 AM	Felix S. Olise	# 5	Some Calculated (p,α) Cross-sections using the Alpha Particle Knock-on and Triton Pick-up Pre-equilibrium Reaction Mechanisms	



## CAARI 2018 SCHEDULE OF EVENTS - TUESDAY, AUGUST 14, 2018

12:00 -  
1:30 PM

Lunch

Grapevine Ballroom  
A/C

<b>RE-02</b>			<b>Title: Multiscale studies of irradiated materials for fusion applications - II</b>	<b>Grapevine 1</b>
		AB	<b>Chair: Osman El Atwani</b>	
1:30 PM	Stuart Maloy	# 323	On the Radiation Tolerance of Nanocrystalline Tungsten Materials	
1:55 PM	Peter Hosemann	# 388	Utilizing the Helium ion beam microscope for implantation studies to understand the effect of He bubble structures in solids	
2:20 PM	Feng Ren	# 28	Enhanced radiation tolerance of nanochannel materials	
2:45 PM	Laura Dominik	# 402	Atmospheric Neutron Testing	

<b>MA-01</b>			<b>Title: Technological Developments and Future Aspirations - I</b>	<b>Grapevine 2-3</b>
		AB	<b>Chair: Jonathan Farr</b>	
1:30 PM	John Robb	# 362	Planning and Supporting a New Generation of Centers for Particle Beam Radiation Therapy Research	
1:55 PM	Judith Reindl	# 336	Ion microbeam SNAKE: Technology and future developments for radiobiological and medical research	
2:20 PM	James Welsh	# 365	A New Model for Future Ion Beam Therapy Research and Treatment Centers - From the Laboratory to the Clinic	
2:45 PM	Keith Stantz	# 403	Use of Thermoacoustics to Image Therapeutic Charged Particle Beams	

<b>TD-02</b>			<b>Title: Emerging Accelerator Technologies - I</b>	<b>Austin 1-2</b>
		AB	<b>Chair: Derun Li</b>	
1:30 PM	Daniel M. Kaplan	# 276	Muon Colliders, Neutrino Factories, and Results from the MICE Experiment	
2:00 PM	Paul R. Bolton	# 319	The Integrated Laser-driven Accelerator System	
2:30 PM	Richard Lee Fink	# 42	C-14 Isotopic Targets	
2:45 PM	Gabriele Formicone	# 51	An Emerging Solid-State UHF Technology based on 100 VDC GaN for Powering Particle Accelerators	

<b>AS-02</b>			<b>Title: Future Workforce and Capability Development</b>	<b>Austin 5-6</b>
		AB	<b>Chair: Steve Lund</b>	
1:30 PM	Alireza Nassiri	# 239	Accelerator Science & Engineering Traineeship Program at Michigan State University	
2:00 PM	Young-Kee Kim	# 349	Program at the Center for Bright Beams to recruit and train the next generation of scientists in accelerator and related fields	
2:30 PM	Steven M Lund	# 140	US Particle Accelerator School activities in workforce training for accelerator science and engineering	

## CAARI 2018 SCHEDULE OF EVENTS - TUESDAY, AUGUST 14, 2018

TA-04			Title: Graduate Programs I	Ft. Worth 3-4
		AB	Chair: Graham Peaslee	
1:30 PM	Cristiano Lino Fontana	# 190	Resource sharing in the Nuclear Physics laboratory classes: a distributed data acquisition system for experiments with shared resources and data management	
1:55 PM	Jennifer Shusterman	# 258	Graduate Research Programs in Nuclear and Radiochemistry at Hunter College	
2:25 PM	Sean McGuinness	# 253	Development of the St. Andre Ion Beam Analysis Facility at Notre Dame	

IA-01			Title: Accelerators for Geo-Physical Applications	Ft. Worth 6-7
		AB	Chair: Jani Reijonen	
1:30 PM	Brian Jurczyk	#197	Compensated Neutron Logging Tool Using DD Neutron Generator For AmBe Replacement	
1:52 PM	Ahmed Badruzzaman	# 286	Am-Be Versus Neutron Generator-based Alternatives for Well Logging Measurements	
2:14 PM	Weijun Guo	# 54	Porosity Measurement in Oil-Well Logging Using a Pulsed-Neutron Tool	
2:29 PM	Frederic Gicquel	# 366	Advances in Accelerator Technology for the Oil and Gas Industry: High-Output Small Form Factor Neutron Generator for Advanced Neutron Measurements	
2:44 PM	Long Vo	# 53	Development of a Test Facility for Studies Relevant to Replacing Dangerous Radiological Sources	

3:00 - 3:30  
PM

Break

Grapevine Ballroom  
A/C

IBTM-05			Title: Ion and Micro Beam Analysis	Grapevine 1
		AB	Chair: Nicole Herbots	
3:30 PM	Mohamad Roumie	# 173	Use of Proton Beam and its Rutherford Backscattering on CR39 for Radiation Dose Assessment	
3:50 PM	Mikko Laitinen	# 262	ToF-ERD analysis software Potku 2.0 with integrated MCERD	
4:10 PM	J Napagoda	# 314	Ion Channeling In Nanotubes	
4:30 PM	Takeru Ohkubo	# 133	Preliminary formation of a negative ion microbeam in a compact ion microbeam system	
4:50 PM	Varghese Chirayath	# 351	Design of an electrostatic focusing system for low MeV multi-ion micro-beam	

MA-02			Title: Technological Developments and Future Aspirations - II	Grapevine 2-3
		AB	Chair: Richard Philip Levy	
3:30 PM	Zelig Tochner	# 264	Impact of imaging and beam scanning technologies on the particle therapy penetration to the mainstream clinical practice	
4:00 PM	Keith E Schubert	# 348	Robust Iterative Methods: Convergence and Applications to Proton Computed Tomography	
4:30 PM	Vinod Bharadwaj	# 308	Pluridirectional High-energy Agile Scanning Electronic Radiotherapy (PHASER)	
4:45 PM	Johanna Pitters	# 280	PET-aided hadron therapy based on 11C	

## CAARI 2018 SCHEDULE OF EVENTS - TUESDAY, AUGUST 14, 2018

<b>ISM-03</b>			<b>Title: Ion Beam Modification and Radiation Effects in Solids</b>	<b>Austin 1-2</b>
		AB	<b>Chair: Ke Jin</b>	
3:30 PM	Katarzyna Nowakowska-Langier	# 92	Pulsed plasma generated in coaxial accelerator for the synthesis of thermodynamic unstable materials	
3:50 PM	Arun Devaraj	# 306	Analyzing ion beam irradiation effects in materials by multimodal microstructural characterization	
4:10 PM	Chenyang Lu	# 97	Radiation response in single-phase concentrated solid solution alloys	
4:30 PM	William A. Hollerman	# 100	Evidence of a Simple Damage Energy Scaling Rule for Proton Irradiation of Luminescent Materials	
4:45 PM	Joshua Michael Young	# 191	Modification of crystalline phase in space silicate analogues with light ion irradiation	

<b>SP-05</b>			<b>Title: Physics with Lasers and Traps</b>	<b>Austin 5-6</b>
		AB	<b>Chair: Yuan Liu</b>	
3:30 PM	Valentin Fedosseev	# 105	Laser ion source as a research tool at the ISOLDE/CERN radioactive ion beam facility	
3:55 PM	Anna Kwiatkowski	# 221	TITAN-TRIUMF: Ion traps for precision experiments with radioactive ion beams	
4:20 PM	Klaus D.A. Wendt	# 180	Laser Isotope Separation revisited – Production and characterization of highest purity radioisotope samples for neutrino mass determination and more	
4:45 PM	Huanyu Zhao	# 166	Development of Laser Ion Sources at IMP	
5:00 PM	Elisa Romer-Romero	# 194	High Efficiency Resonance Laser Ionization of Pu	

<b>TA-06</b>			<b>Title: Vacuum Class I: Physics of Vacuum</b>	<b>Ft. Worth 3-4</b>
			<b>Chair: Walt Van Hemert (Agilent)</b>	
3:30 PM			Class/Workshop	

<b>RE-07</b>			<b>Title: Accelerator-based Irradiation capabilities for Nuclear Energy Research</b>	<b>Ft. Worth 6-7</b>
		AB	<b>Chair: Andrew Smith</b>	
3:30 PM	Ian Peter Swainson	# 375	IAEA activities in support of Materials Research using Ion Beams	
3:50 PM	Yongfeng Wang	# 212	High Intensity D-T Fusion Neutron Generator and Its Applications	
4:10 PM	Fabian U. Naab	# 196	Mitigation of carbon contamination in ion irradiation experiments through environmental conditioning	
4:30 PM	Simon M. Pimblott	# 257	Roadmap for the Application of Ion Beam Technologies to Challenges for the Advancement and Implication of Nuclear Energy Technologies	
4:45 PM	Samuel A Briggs	# 110	Coupling a 6 MV Tandem and an Ion Gun to a Scanning Electron Microscope	

<b>5:30 - 7:30 PM</b>	<b>Poster Session 2</b>		<b>All Posters - list available on pages 24-26</b>	<b>Grapevine Ballroom A/C</b>
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<b>7:30 PM</b>	<b>TOPIC EDITOR &amp; SESSION CHAIR APPRECIATION EVENT</b>			
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## CAARI 2018 SCHEDULE OF EVENTS - WEDNESDAY AUGUST 15, 2108

7:00 AM - 4:00 PM	<b>Onsite Registration Open</b>	<b>Grapevine Pre- Function</b>
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7:00 AM	<b>Breakfast</b>	<b>Grapevine Ballroom A/C</b>
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<b>Plenary Sessions</b>			<b>Grapevine Ballroom B</b>
	<b>PS-03</b>	AB	
8:00 AM	David Jamieson	# 114	Ten qubits in five years: Building a near-term quantum computer device by deterministic ion implantation based on donors in silicon
8:45 AM	Phil Cole	# 81	Harvey Recovery: Drones, Cores, and Photon Activation Analysis

9:30 - 10:00 AM	<b>Break</b>	<b>Grapevine Ballroom A/C</b>
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10:00 AM - 6:00 PM	<b>Vendor Exhibit Open</b>	<b>Grapevine Ballroom A/C</b>
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### General Sessions

<b>IBTM-01</b>			<b>Title: Advances in MeV SIMS</b>	<b>Grapevine 1</b>
		AB	<b>Chair: Iva Bogdanovic Radovic</b>	
10:00 AM	Toshio Seki	# 179	Chemical Analysis under Ambient Conditions using MeV-Energy Heavy Ion	
10:30 AM	Melanie J Bailey	# 175	Exploring the compatibility of MeV SIMS and Desorption Electrospray Ionisation (DESI) for multimodal imaging of biomedical samples	
11:00 AM	Klaus-Ulrich Miltenberger	# 94	Secondary ion yield and fragmentation in MeV-SIMS performed on organic samples	
11:30 AM	Roger Paul Webb	# 296	Detection of Cocaine Parent and Fragment Molecules using Ambient Pressure MeV-SIMS	
11:45 AM	Iva Bogdanovic Radovic	# 214	Recent developments and applications of MeV SIMS at the Ruđer Bošković Institute in Zagreb	

<b>MA-06</b>			<b>Title: Accelerator-Based Boron Neutron Capture Therapy (BNCT)</b>	<b>Grapevine 2-3</b>
		AB	<b>Chair: Hanna Koivunoro</b>	
10:00 AM	Hanna Koivunoro	# 260	Boron Neutron Capture Therapy in Finland: the Past, the Present and the Future	
10:25 AM	Yoshiaki Kiyunagi	# 295	Status of the accelerator based BNCT projects Worldwide	
10:50 AM	Hiroki Tanaka	# 311	Overview of Cyclotron-based Epithelial Neutron Source(C-BENS) for BNCT	
11:05 AM	Hiroaki Kumada	# 334	Beam performance of the iBNCT as a compact linac-based BNCT neutron source developed by University of Tsukuba	
11:30 PM	Alexander Dunaevsky	# 356	Accelerator Technologies at TAE: from Fusion to BNCT	
11:55 AM	Grazia Gambarini	# 136	Problems in dose measurements in Adrotherapy and BNCT due to dosimeter sensitivity quenching	

## CAARI 2018 SCHEDULE OF EVENTS - WEDNESDAY AUGUST 15, 2108

<b>AF-01</b>			<b>Title: Accelerator Facilities for Industry and Medicine</b>	<b>Austin 1-2</b>
		AB	<b>Chair: Carol Johnstone</b>	
10:00 AM	Monika Kinga Stachura	# 354	Isotope Research Applied to Life Sciences in the Planned Institute for Advanced Medical Isotopes (IAMI)	
10:30 AM	Loyd Hoyt Waites	# 265	IsoDAR: A Cyclotron based Neutrino Source with Applications to Medical Isotope Production	
10:45 AM	Nicolae C. Podaru	# 144	The HVEE Single Ended Particle Accelerators – Performance and Applications	
11:00 AM	Richard A. Galloway	# 7	Improvements in the Design of Dynamitron Accelerators	
11:25 AM	Thomas Kroc	# 244	Spreading the Wealth of Accelerator Knowledge: The Illinois Accelerator Research Center	
11:40 AM	Carol Johnstone	# 360	Towards the Next Generation of Ion Therapy and Imaging Accelerators	

<b>ISM-07</b>			<b>Title: Applications of Ion Beams in Frontiers of Material Research</b>	<b>Austin 5-6</b>
		AB	<b>Chair: Theva Thevuthasan</b>	
10:00 AM	William J Weber	# 228	Effects on Electronic Energy Loss on Irradiation Response of SiC	
10:25 AM	Yanwen Zhang	# 229	Ionization Effects in Oxides under Ion Irradiation	
10:50 AM	Benjamin Eftink	# 161	Additively Manufactured grade 91 steel for reactor applications	
11:15 AM	Xin Ou	# 383	Universal“Ion-cut” for Nanopatterning, modification and heterointegration of semiconductors	
11:40 AM	Vaithiyalingam Shuthanandan	# 305	Helium Ion Microscope: Past, Present and Future	

<b>NST-01</b>			<b>Title: Nanoscale Surface Patterns Produced by Broad Beams of Particles - I</b>	<b>Ft. Worth 3-4</b>
		AB	<b>Chair: Mark Bradley</b>	
10:00 AM	Stefan Facsko	# 285	Spontaneous pattern formation on crystalline surfaces induced by low energy ion irradiation	
10:30 AM	Rodolfo Cuerno	# 93	Nonlinear theory of ion-induced solid flow	
11:00 AM	Hans Hofsaess	# 115	Prediction of ion-induced pattern formation using Monte Carlo Simulations and comparison with experiments	
11:30 AM	Naresh Deoli	# 343	Sputtering of silicon: a comparison between simulations and experiments	

<b>SD-06</b>			<b>Title: Neutron Generators for Security and Defense</b>	<b>Ft. Worth 6-7</b>
		AB	<b>Chair: Brian E. Jurczyk</b>	
10:00 AM	Andrea Schmidt	# 202	Using Particle-in-Cell (PIC) Models to Optimize Short-Pulse Neutron Sources for National Security and Industry Applications	
10:25 AM	Paul McBride	# 327	Explosive Detection Using a Field Deployable Neutron Generator	
10:50 AM	Kai Masuda	# 167	R&D on a Portable Active Neutron Interrogation System for Special Nuclear Materials	
11:07 AM	Joseph Schumer	# 217	Short-pulse Photoneutron Production on Beryllium Using the Mercury Pulsed Power X-ray Source	
11:24 AM	Matthew D Coventry	# 185	Characterization of a Portable Neutron Generator for Neutron Imaging	
11:41 AM	Charles K Gary	# 358	Advanced Neutron Generators for Activation Analysis and Imaging	

## CAARI 2018 SCHEDULE OF EVENTS - WEDNESDAY AUGUST 15, 2108

12:00 -  
1:30 PM

Lunch

(on your own)

RE-04		Title: Radiation Effects in Nanostructured Materials		Grapevine 1
		AB	Chair: Feng Ren	
1:30 PM	Yang Tan	# 74	Imperfect WSe <sub>2</sub> monolayer is better than perfect ones as a platform for SERS	
1:55 PM	Osman Anderoglu	# 392	Development and Testing of Advanced Alloys for High Dose Applications in Next Generation of Nuclear Reactors	
2:20 PM	Emily Aradi	# 9	In-situ TEM Observation of the Response of Tungsten Nanoparticles under He <sup>+</sup> Irradiation	
2:35 PM	Huijun Yao	# 218	Ion introduced defects in graphene and their applications on ion separation and transport	

MA-04		Title: Particle Beam Radiobiology: Modeling and Simulation for Accelerator-Based Medical Applications		Grapevine 2-3
		AB	Chair: Judith Reindl	
1:30 PM	Judith Reindl	# 335	Radiobiological and preclinical, medical physics research at the ion microprobe SNAKE	
2:05 PM	Michael Scholz	# 400	A comparison of biophysical models predicting the relative biological effectiveness (RBE) for treatment planning in ion beam therapy	
2:40 PM	Jacob Daniel Baxley	# 235	Simulating Boron Enhancement in Proton Therapy	

ISM-04		Title: New Frontiers of SIMS		Austin 1-2
		AB	Chair: Zihua Zhu	
1:30 PM	Xiao-Ying Yu	# 201	Towards Elucidation of Plant and Bacteria Interactions Using In Situ Liquid SIMS	
2:00 PM	Toshio Seki	# 178	SIMS Analysis of Liquid Materials in Low Vacuum with Large Cluster Ion Beam	
2:15 PM	Wen Liu	# 45	Molecular Examination of Ion Solvation using in situ Liquid SIMS	
2:30 PM	Ke Jin	# 103	Using ToF-SIMS to advance the quantification of stopping powers for heavy ions in ceramics	
2:45 PM	Zihua Zhu	# 44	Molecular tracking of mass transfer in electric double layer at electrode-electrolyte interface using in situ liquid SIMS	

SP-07		Title: Nuclear Reactions II		Austin 5-6
		AB	Chair: Hye Young Lee	
1:30 PM	Christiaan Vermeulen	# 223	Radioactive Targets at Los Alamos National Laboratory: A quasi-philosophical approach	
1:53 PM	Panagiotis Gastis	# 187	Measurements of (p,n) reactions relevant to the neutrino-p process in the ReA3 facility	
2:15 PM	Gregory Christian	# 240	Experiments with Radioactive Beams at the Texas A&M University Cyclotron Institute	
2:38 PM	Tan Ahn	# 269	Elastic and Inelastic Scattering with TwinSol Radioactive Beams: Study of Cluster Structure in Light Nuclei	

TA-07		Title: Vacuum Class II: Pumps and Gauges		Ft. Worth 3-4
		Chair: Walt Van Hemert (Agilent)		
1:30 PM			Class/Workshop	

## CAARI 2018 SCHEDULE OF EVENTS - WEDNESDAY AUGUST 15, 2108

<b>SD-01</b>			<b>Title: X-Ray Sources for NII Systems</b>	<b>Ft. Worth 6-7</b>
		AB	<b>Chair: Willem G.J. Langeveld</b>	
1:30 PM	Thomas K Kroc	# 236	From Science to Industry: A Truly High-Power Electron Accelerator for Multiple Industrial Applications	
2:00 PM	Sergey Kutsaev	# 41	X-ray Sources for Adaptive Radiography and Computed Tomography	
2:30 PM	Vinod Bharadwaj	# 250	Novel Linear Accelerators for X-ray Sources	

**3:00 - 3:30 PM** **Break** **Grapevine Ballroom A/C**

<b>RE-06</b>			<b>Title: Radiation effects in non-metallic materials</b>	<b>Grapevine 1</b>
		AB	<b>Chair: Yuhong Li &amp; Osman Anderoglu</b>	
3:30 PM	Engang Fu	# 237	Defect Engineering of Molybdenum Disulfide (MoS <sub>2</sub> ) to Tunable Hydrogen Evolution Behavior through Ion Irradiation	
4:00 PM	Arun Nimmala	# 15	Effects of Swift Heavy Ion irradiation on the structural and electrical properties of HfO <sub>2</sub> based Resistive Random Access Memory Devices	
4:20 PM	William A. Hollerman	# 101	New Half Brightness Fluence Measurements for Large-Grained ZnS:Mn, EuD <sub>4</sub> TEA, and MnD <sub>4</sub> TEA Samples	

<b>MA-05</b>			<b>Title: Accelerator Production of Medically Relevant Isotopes</b>	<b>Grapevine 2-3</b>
		AB	<b>Chair: Hanna Koivunoro</b>	
3:30 PM	Peter McIntyre	# 129	Strong-Focusing Cyclotron - High-Current Proton Driver for Isotope Production	
3:45 PM	Constance G Stoner	# 130	Improving Properties of Carbon Stripper (Extractor) Foils by Use of Multiple Layers	
4:00 PM	Vadim Gadelshin	# 203	Prospects of the use of laser resonance ionization in production of medical radioisotopes	
4:15 PM	Sergey Chemerisov	# 330	Accelerator-Based Production of Mo-99: Photonuclear Approach	
4:30 PM	Sergey Chemerisov	# 331	Production of Medical Isotopes at Argonne Low Energy Accelerator Facility (LEAF)	

<b>TD-01</b>			<b>Title: Accelerator Technology for Security and Defense Applications</b>	<b>Austin 1-2</b>
		AB	<b>Chair: Mike King</b>	
3:30 PM	William Leo Nighan	# 342	MeV LINAC Systems for Security and Cargo Scanning with Pulse-to-Pulse Control of Stability, Energy and Dose	
4:00 PM	Anna Erickson	# 344	Monoenergetic Photon Radiography in Active Interrogation of Special Nuclear Material	
4:30 PM	Ceri David Clemett	# 298	Practical optimisation of radiation sources for border security applications	

## CAARI 2018 SCHEDULE OF EVENTS - WEDNESDAY AUGUST 15, 2108

SP-09			Title: Nuclear Data Applications	Austin 5-6
		AB	Chair: Hye Young Lee	
3:30 PM	Filip G Kondev	# 238	Nuclear Data Research Activities at Argonne National Laboratory	
3:55 PM	Georgios Perdikakis	# 246	Neutron-induced reaction rates away from stability for astrophysics applications: Uncertainties in statistical model calculations and implications for neutron-induced nucleosynthesis	
4:20 PM	Michelle Mosby	# 252	Nuclear Data in Defense Program Applications	
4:45 PM	Libby McCutchan	# 393	Revealing the signature of individual fission products from nuclear reactors' antineutrino spectra	

TA-05			Title: Graduate Programs II	Ft. Worth 3-4
		AB	Chair: Graham Peaslee	
3:30 PM	Stacy L. Queern	# 283	Production of <sup>89</sup> Zr and development of nHap molecular imaging agents	
3:55 PM	Jason Nattress	# 263	Ion Beam Experiments for Nuclear Nonproliferation and Security Applications	
4:20 PM	Graham F Peaslee	# 317	Isotope Harvesting and Ion Beam Analysis as Graduate Research Projects	

IA-03			Title: Neutron Applications for Industry	Ft. Worth 6-7
		AB	Chair: Brian Jurczyk	
3:30 PM	Katie Rittenhouse	# 328	Neutron Radiography using a High-Flux Compact Thermal Neutron Generator	
3:50 PM	Allan Xi Chen	# 367	Advances in High Flux Compact D-D Neutron Generator using an Off-Resonance Electron Cyclotron Resonance Driven Microwave Ion Source	
4:05 PM	Katie Rittenhouse	# 326	Commercial Applications of High-Yield Accelerator-Based Neutron Generator	
4:20 PM	Thomas James Houllahan	# 315	Characterization of a Compact 4/2 MeV D <sup>+</sup> /p RFQ Accelerator System for Fast-, Epithermal- & Thermal-Neutron Radiography	
4:40 PM	Katie Rittenhouse	# 329	Neutron Generator Driven Active Fuel Scanner	

6:30 PM		CONFERENCE BANQUET	Grapevine Ballroom B
Speaker	Joe Giaime	Wonderful collisions: gravitational wave detection meets astrophysics	



## CAARI 2018 SCHEDULE OF EVENTS - THURSDAY AUGUST 16, 2108

7:00 AM - 4:00 PM	<b>Onsite Registration Open</b>	<b>Grapevine Pre-Function</b>
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7:00 AM	<b>Breakfast</b>	<b>Grapevine Ballroom A/C</b>
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<b>Plenary Sessions</b>			<b>Grapevine Ballroom B</b>
	<b>PS-04</b>	AB	
8:45 AM	Michael Current	# 355	Ion Implantation for Electronic Devices: From Dennard Scaling to Qubits

9:30 - 10:00 AM	<b>Break</b>	<b>Grapevine Ballroom A/C</b>
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10:00 AM - 1:00 PM	<b>Vendor Exhibit Open</b>	<b>Grapevine Ballroom A/C</b>
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### General Sessions

<b>AMP-03</b>			<b>Title: Radiation Effects in Biological and Chemical Systems</b>	<b>Grapevine 1</b>
		AB	<b>Chair: Jeff Shinpaugh</b>	
10:00 AM	Simon M. Pimblott	# 256	Radiation track structure and the charge cycling of ions in nuclear materials	
10:25 AM	Andy Smith	# 292	The application of ion beam accelerators to the study of radiation damage in biological systems : some perspectives from a small lab	
10:45 AM	Susanne Ullrich	# 126	Thionated Uracils under UV Irradiation: Intramolecular Micro-Environmental Effects on the Intersystem Crossing Dynamics	
11:10 AM	Marcelo Ambrosio	# 401	A Generalized Sturmian Functions approach to proton-impact double ionization of He	
11:30 AM	Paul Bergstrom	# 182	Photon Data in Radiation Dosimetry: Analysis of ICRU Report 90 Recommendations and Beyond	
11:45 AM	Elahe Alizadeh	# 220	Bimolecular Damage Induced by Ionizing Radiation: The Direct and Indirect Effects of Low-Energy Electrons on DNA	

<b>RE-01</b>			<b>Title: Multiscale studies of irradiated materials for fusion applications - I</b>	<b>Grapevine 2-3</b>
		AB	<b>Chair: Osman El Atwani</b>	
10:00 AM	Robert D. Kolasinski	# 275	Characterization of helium plasma-induced damage of tungsten surfaces using helium ion microscopy, ion channeling, and in-situ spectroscopic ellipsometry	
10:30 AM	Danny Perez	# 234	Long-timescale atomistic simulations of Helium in Tungsten for fusion applications	
11:00 AM	Kun Wang	# 155	Multi-scale electron microscopy study on the damage mechanisms of materials under fusion irradiation environments	
11:30 AM	Caitlin Anne Taylor	# 346	Direct Comparison of Helium Aging in Ion Implanted and Tritium Loaded Metals	

## CAARI 2018 SCHEDULE OF EVENTS - THURSDAY AUGUST 16, 2108

AF-02		Title: Accelerator Facility Updates - I		Austin 1-2
		AB	Chair: Naresh Deoli	
10:00 AM	Nicholaos Tsoupas	# 52	An AC dipole for the AGS Booster to overcome spin resonances	
10:30 AM	Armand Atanacio	# 70	CAS – The new Centre for Accelerator Science in Australia. Its facilities and capabilities for Australia and the Asian region	
11:00 AM	Jack E Manuel	# 232	An Overview of the Facilities, Activities, and Developments at the University of North Texas Ion Beam Modification and Analysis Laboratory (IBMAL)	
11:15 AM	Francois Meot	# 83	A Full Fied-Map Modeling of Cornell-BNL CBETA 4-Pass Energy Recovery Linac	
11:30 AM	Yunlong Chi	# 12	Design and Commissioning of NSC KIPT NS Driver Electron Linac	
11:45 AM	Andrew Leland Cooper	# 266	Early Experience Using a Variable-Energy, High-Intensity, Pulsed-Mode Ion Source for Low-Energy Nuclear Astrophysics Studies at LENA	

SP-03		Title: Astrophysics		Austin 5-6
		AB	Chair: Daniel Wayne Bardayan	
10:00 AM	Patrick D O'Malley	# 85	Spectroscopic strengths of low-lying levels in $^{18}\text{Ne}$	
10:30 AM	Doug Soltesz	# 38	Use of ( $^3\text{He},n$ ) Indirect Measurements to Study H and He burning reactions in Type-I X-Ray Bursts	
10:50 AM	Matthew R Hall	# 68	New S-Wave Resonances Found in $^{19}\text{Ne}$ for the $^{18}\text{F}(p,\alpha)^{15}\text{O}$ Reaction	
11:20 AM	Kristyn Holley Brandenburg	# 205	Development of a Long Counter for (alpha,n) measurements at the Ohio University Edwards Accelerator	

NBAT-02		Title: Neutron Based Techniques & Nuclear Data		Ft. Worth 3-4
		AB	Chair: Jebediah Styron & Zaijing Sun	
10:00 AM	William Wampler	# 299	14 MeV Neutron Tests at the Sandia Ion Beam Laboratory	
10:30 AM	Jedediah Styron	# 387	Neutron diagnostic characterization at the Ion Beam Laboratory for inertial confinement fusion experiments conducted at the Z-accelerator facility	
11:00 AM	Shakilur Rahman	# 312	Measurement of flux-weighted average cross-section of $^{100}\text{Mo}(g,x)^{99}\text{Mo}$ , $^{100}\text{Mo}(g,np)^{98m}\text{Nb}$ , and $^{59}\text{Co}(g,xn)$ ; $x=1-4$ $^{58-55}\text{Co}$ reactions with bremsstrahlung end-point energies of $^{55-65}\text{MeV}$	
11:15 AM	Jiri Vacik	# 302	Study of Li diffusion in Li-ion batteries by Thermal Neutron Depth Profiling	
11:30 AM	Mahmoud Bakr	# 112	Development of a Portable Neutron Generator Based on Inertial Electrostatic Confinement D-D Fusion Reaction	

SD-03		Title: Detectors for Accelerator-Based Security and Defense - II		Ft. Worth 6-7
		AB	Chair: Willem G.J. Langeveld	
10:00 AM	Sara Pozzi	# 325	Detectors and algorithms for active interrogation	
10:30 AM	Stacy E Swider	# 347	New scintillator development, large crystal growth, and the challenges of maintaining high performance.	
11:00 AM	Enrico Gazzola	# 134	Signal processing optimization for a neutron scintillator read-out with SiPMs	
11:25 AM	Marco Panniello	# 261	'Noble' Detectors with Excellent Active and Passive Detection Characteristics	

## CAARI 2018 SCHEDULE OF EVENTS - THURSDAY AUGUST 16, 2108

12:00 -  
1:30 PM

Lunch

(on your own)

NST-02		Title: Nanoscale Surface Patterns Produced by Broad Beams of Particles - II		Grapevine 2-3
		AB	Chair: Rodolfo Cuerno	
1:30 PM	Dmitriy Voronov	# 128	Nanoscale ripple patterns on a surface of growing multilayer films	
2:00 PM	Mark Bradley	# 60	Terraced Topographies and Blazed Diffraction Gratings Produced by Ion Sputtering	
2:30 PM	Denise Erb	# 135	Surface nanopatterning induced by low-energy ion irradiation: Experimental investigations of non-equilibrium pattern formation	
2:45 PM	Mahsa Mokhtarzadeh	# 273	Co-GISAXS Analysis for Investigating Surface Growth Dynamics of Ar <sup>+</sup> Bombardment of SiO <sub>2</sub>	

ISM-05		Title: High Energy ions in Advanced Functional Materials		Austin 1-2
		AB	Chair: Anand Pathak	
1:30 PM	Mallikarjuna Rao Motapothula	# 64	The degradation study of organic perovskite single-crystals and solar cell devices by in-situ ion beam analysis	
2:00 PM	John Derek Demaree	# 24	Sequential MeV implantation effect on the refractive index and nanoparticle nucleation in silica	
2:15 PM	Anand Pathak	# 279	Ion Beams and Lasers for Synthesis , modifications and characterization of NanoMaterials	
2:45 PM	Lenore S. Miller	# 25	Ion Induced Structural Changes in Graphite	

SP-04		Title: Fundamental Symmetries		Austin 5-6
		AB	Chair: Anna Hayes	
1:30 PM	Praveen D Shidling	# 231	Fundamental weak interaction studies using ion traps	
2:00 PM	Chen-Yu Liu	# 363	Fundamental Physics at the LANSCE Ultracold Neutron Source	
2:30 PM	Vince Cianciolo	# 386	Fundamental Physics at the Oak Ridge Spallation Neutron Source	

TA-10		Title: Electrostatic Accelerator Basics and Recent Development at HVE		Ft. Worth 3-4
			Chair: Nicolae Podaru (HVE)	
1:30 PM			Class/Workshop	

TA-01		Title: Undergraduate Education and Experiments with Accelerators - I		Ft. Worth 6-7
		AB	Chair: Andrew Roberts	
1:30 PM	Christopher John Prokop	# 152	The Value of Undergraduate Research, From the Perspective of an Early-Career Nuclear Scientist	
2:00 PM	Hans Hofsaess	# 117	Analysis of the <sup>11</sup> B(p,a)2a nuclear reaction using an ion implanter	
2:25 PM	Scott LaBrake	# 142	Distribution of Heavy Metals Along New York's East River	

## CAARI 2018 SCHEDULE OF EVENTS - THURSDAY AUGUST 16, 2108

**3:00 - 3:30 PM** **Break** **Grapevine Ballroom A/C**

<b>AMP-04</b>			<b>Title: PIXE Basics and Application</b>	<b>Grapevine 1</b>
		AB	<b>Chair: Ziga Smit</b>	
3:30 PM	Gregory Lapicki	# 124	Universal empirical and theoretical fits to L-shell x-ray production cross sections by protons	
4:00 PM	Paula Pongrac	# 104	Micro-PIXE analysis in plant biology at Jozef Stefan Institute	
4:30 PM	Hanan Sa'adeh	# 313	Towards Aerosol Analysis at the PIXE-RBS Beamline in the University of Jordan Van de Graaff Accelerator (JUVAC)	

<b>IBTM-04</b>			<b>Title: IBA of Liquids and Biological Samples</b>	<b>Grapevine 2-3</b>
		AB	<b>Chair: Gyorgy Vizkelethy</b>	
3:30 PM	Nicole Herbots	# 274	Accurate Electrolyte Measurements by Ion Beam Analysis using Microliter-Size Blood Drops Congealed Into Homogeneous Thin Solid Films via Hemadrop™ Coatings and DropFilmStrip™ Substrate	
4:00 PM	Hans Hofsaess	# 118	Development of external beam coincidence ERDA : Hydrogen analysis of thin films and moist samples	
4:25 PM	Harshini Thinakaran	# 225	Rapid Human Blood Diagnostics via Ion Beam Analysis of 10 µl Droplets Congealed into Homogeneous Thin Solid Films (HTSF) via Hemadrop™ Coatings	

<b>ISM-06</b>			<b>Title: Defect Engineering in ion Modified Material</b>	<b>Austin 1-2</b>
		AB	<b>Chair: Engang Fu</b>	
3:30 PM	Ke Jin	# 102	Investigating compositional effects on irradiation response in single-crystalline concentrated solid-solution alloys using ion beam techniques	
4:00 PM	Lukasz Kurpaska	# 113	Nanomechanical properties of ion implanted ferritic/martensitic steels	
4:30 PM	Saaketh R. Narayan	# 251	Ion Beam Analysis Correlated with Surface Energy Measurements on Silicon Oxides as a Function of Dopant Species and Concentration	
4:50 PM	Yan Chen	# 208	Defect Engineering in Transition Metal Oxides and Dichalcogenide Using Heavy Ion Irradiation	

<b>CR-01</b>			<b>Title: Highlights of Accelerator-Based Conferences held in 2018</b>	<b>Austin 5-6</b>
		AB	<b>Chair: Barney Doyle</b>	
3:30 PM	Oliver Kester	# 297	The 9th International Particle Accelerator Conference, IPAC-18	
3:50 PM	Roger Paul Webb	# 310	Report on the ICNMTA and COSIRES conferences	
4:10 PM	Yongqiang Wang		21st International Conference on Ion Beam Modification of Materials, IBMM 2018	
4:30 PM	Gregor Hlawacek		Helium Ion Microscopy and Emerging Focused Ion Beam Technologies, HEFIB 2018	
4:50 PM	Mallikarjuna Rao Motapothula		9th International Workshop on High-Resolution Depth Profiling, HRDP-9	

<b>TA-11</b>		AB	<b>Title: Cyclotrons: Beam Production and Applications</b>	<b>Ft. Worth 3-4</b>
		# 382	<b>Chair: Brian Roeder (TAMU)</b>	
3:30 PM			Class/Workshop	

## CAARI 2018 SCHEDULE OF EVENTS - THURSDAY AUGUST 16, 2108

<b>IA-04</b>			<b>Title: Associated Particle Neutron Generator Applications</b>	<b>Ft. Worth 6-7</b>
		AB	<b>Chair: Arun Persaud</b>	
3:30 PM	Galina Yakubova	# 77	Application of associated particle neutron techniques for soil carbon analysis	
4:00 PM	Bonnie Elise Canion	# 189	Fast Neutron Induced Gamma-ray Imaging Study	
4:30 PM	Mauricio Ayllon Unzueta	# 108	Associated Particle Imaging of Carbon in Soil	
4:45 PM	Charles K Gary	# 372	Advances in Associated Particle Imaging Neutron Generators	

**6:00 PM**

**STUDENT APPRECIATION EVENT  
(Paradise Springs Waterpark)**

## CAARI 2018 SCHEDULE OF EVENTS - FRIDAY AUGUST 17, 2108

8:00 AM - 1:00 PM	<b>Information Desk</b>	<b>Grapevine Pre- Function</b>
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7:00 AM	<b>Breakfast</b>	<b>Grapevine Ballroom A/C</b>
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<b>Plenary Sessions</b>			<b>Grapevine Ballroom B</b>
	<b>PS-05</b>	AB	
8:45 AM	Lin Shao	# 233	Applications of Ion Accelerators in Nuclear Materials Science: Issues and Perspectives

9:30 - 10:00 AM	<b>Break</b>	<b>Grapevine Ballroom A/C</b>
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### General Sessions

<b>RE-03</b>			<b>Title: Radiation Effects in Electronics</b>	<b>Grapevine 1</b>
		AB	<b>Chair: Stephen Wender</b>	
10:00 AM	Jeffrey S George	# 254	Overview of Radiation Effects in Semiconductor Devices	
10:30 AM	Suzanne F Nowicki	# 338	Space Environment Effects on Space Systems	
11:00 AM	Sean Blanchard	# 389	Radiation Effects on High Performance Computers	
11:30 AM	Albert Colon	# 288	Effects of Electron Beam Induced Current on Breakdown Voltage of GaN P-N Junction Diodes and AlGaIn/GaN Schottky Diodes	
11:45 AM	Robert B Stoner	# 131	Thin Carbon Foils for Time-of-Flight (TOF) Measurements of Low-Energy Ions' Velocities	

<b>AF-03</b>			<b>Title: Accelerator Facility Updates II</b>	<b>Austin 1-2</b>
		AB	<b>Chair: Deepak Raparia</b>	
10:00 AM	Hideshi Muto	# 78	Current status of plasma spectroscopic experiments with Hyper-ECR ion source at CNS, University of Tokyo	
10:25 AM	Steve Lidia	# 82	First Beam at FRIB: Commissioning the Facility for Rare Isotope Beams	
10:50 AM	Christoph Montag	# 71	RHIC Status and Plans	
11:15 AM	Michel Kireeff Covo	# 192	The 88-Inch Cyclotron and its Applications	
11:30 AM	Naresh Deoli	# 324	Status of the Louisiana Accelerator Center	

## CAARI 2018 SCHEDULE OF EVENTS - FRIDAY AUGUST 17, 2108

<b>SP-01</b>			<b>Title: New Facilities</b>	<b>Austin 5-6</b>
		AB	<b>Chair: Alfredo Galindo-Uribarri</b>	
10:00 AM	Xinchou Lou	# 216	High Energy Circular Electron Positron Collider (CEPC) As A Higgs Factory	
10:30 AM	J. J. Das	# 395	Status of Helium-Jet Ion-Source development at NSCL/FRIB	
11:00 AM	Lukas Zavorka	# 107	Physics design of the next-generation spallation neutron target-moderator-reflector-shield assembly at LANSCE	

<b>TA-08</b>			<b>Title: Ion Beam Analysis Class</b>	<b>Ft. Worth 3-4</b>
			<b>Chair: Yongqiang Wang (LANL)</b>	
10:00 AM			Class/Workshop	

<b>SD-04</b>			<b>Title: Border, Airport, Rail Car, and Maritime Security</b>	<b>Ft. Worth 6-7</b>
		AB	<b>Chair: Namdoo Moon</b>	
10:00 AM	Cody Wilson	# 243	Cargo Screening Using High Duty Cycle Sources	
10:30 AM	Willem GJ Langeveld	# 271	Z-SCAN, Z-SPEC and Radiography Detectors for X-Ray Cargo Inspection	
11:00 AM	Anatoli Arodzeroo	# 146	Transmission Cargo Inspection with Ramping-Energy X-ray Pulses	
11:30 AM	Cristiano Lino Fontana	# 186	First results of the integration tests of the Rapidly Relocatable Tagged Neutron Inspection System (RRTNIS) of the C-BORD project	

<b>12:30 PM</b>	<b>Closing Remarks</b>	<b>Grapevine Pre-Function</b>
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## CAARI 2018 SCHEDULE OF EVENTS - POSTER SOCIALS

<b>6:00 - 7:30 PM</b>	<b>POSTER SOCIAL 1 -- Monday, 08/13/18</b>
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**Grapevine Ballroom  
A/C**

<b>5:30 - 7:00 PM</b>	<b>POSTER SOCIAL 2 - Tuesday, 08/14/18</b>
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**Grapevine Ballroom  
A/C**

**\*Posters will be presented both Monday & Tuesday evening\***

Topic	Presenter	Ab	Title
AF-01	Carol Johnstone	# 390	Capabilities of the Fermilab Test Beam Facility
AF-01	Brian Jones	# 183	The new heavy ion irradiation facility at KVI-CART
AF-01	Alexey Pronikov	# 59	Influence of the Frequency Detuning to Electrodynamics Parameters of an Electron Linac
AF-02	Faisal Alrumayan	# 20	Measurement of the background radiation at the KFSHRC CS30 cyclotron
AF-02	Alex Kireeff	# 69	Buncher Control System for the 88-Inch Cyclotron
AF-02	Oksana Kozak	# 278	Scientific results of the Institute of Nuclear Research of Ukraine for the needs of nuclear medicine
AF-03	John Kinross-Wright	# 143	Solid-State Thyatron Replacement
AMP-01	ARVIND JAIN	# 17	Investigation of scattering cross sections for collision of electrons with platinum atoms
AMP-01	Gabriel Medrano	# 106	Variational Calculations for the Ps-Ps System
AMP-01	Javier Miranda	# 154	L-shell x-ray production cross sections induced by heavy ion impact: searching for a universal curve.
AMP-01	Steven Sun	# 75	Concentric Cone Antihydrogen Gravity Experiment
AMP-01	Ruitian Zhang	# 219	Absolute measurement of total cross sections of $N^{7+}$ - H charge exchange towards thermal energies
AMP-02	Gurpreet Kaur	# 57	Study of scattering cross sections for collision of low energy electrons with polar molecule: Hydrogen Chloride
AMP-02	Harsh Mohan	# 18	Low energy electron scattering by methane molecules in a spherical model
AMP-02	Lucas Sigaud	# 153	Production pathways for symmetric molecular dications: $N_2^{++}$ , $O_2^{++}$ and $C_2H_4^{++}$
AMP-03	Nichole Libby	# 377	Sensitization of malignant cells by nanoparticles to proton radiation
AMP-04	Juan Restrepo Arteta	# 204	Elemental quantification of homogeneous thick samples using particle-induced x-ray emission (PIXE), including hydrogen profiling.
IA-02	VASILY ANASHIN	# 177	ISDE SEE test facilities based on JINR heavy ion accelerators
IA-02	Dong Dong	# 21	The application of accelerator technology in treating wastewater and haze in BEPC
IA-02	Jonathan Edelen	# 158	3-D Simulation and Efficiency Optimization of Thermionic Energy Converters
IA-02	Khalid Hossain	# 376	Ion-Beam Analysis for Non-Destructive Direct Measurement of Hydrocarbon Content and Mineralogical Elements within Shale
IA-02	Kedi Yin	# 284	Controllable defects production and property modification in single-layer $MoS_2$ by using ion irradiation
IA-04	Charles Gary	# 357	Comparison of YAP and ZnO scintillators for Associated Particle Imaging
IBTM-01	Kwyntero Kelso	# 224	Hydrogen Mobility in Materials
IBTM-02	Mohamad Roumie	# 174	The New Microbeam Setup for Cultural Heritage and Bio-medical Applications at the Lebanese Accelerator



<b>*Posters will be presented both Monday &amp; Tuesday evening*</b>			
<b>Topic</b>	<b>Presenter</b>	<b>Ab</b>	<b>Title</b>
IBTM-02	Stewart Younger-Mertz	# 379	PIXE Analysis of Ceramics from the Clement Archaeological Site (ca. A.D. 1000-1200), a Caddo Mound Complex in the Middle Red River Valley
IBTM-02	Stewart Younger-Mertz	# 380	Identification of a Metal Alloy of Unknown Composition from Oklahoma: Explorations in Twentieth-Century Industrial Archaeology
IBTM-04	Melanie Bailey	# 176	Exploring the possibility of IBA and Direct Analyte Probed Nano Extraction (DAPNe) for protein and elemental speciation
IBTM-04	Jack Day	# 385	Optimizing the Surface Energy and Solidification Rate of Hyper-Hydrophilic Coatings (InnovaDrop™) That Allow Fluids To Be Analyzed In Vacuo
IBTM-04	Shawn Hampton	# 282	Determination of Minimum Detectable Levels and Backing Film for Micro-PIXE Analysis of Rat Brain Tissue
IBTM-05	Yasuyuki Ishii	# 170	Prototype of a penning ionization gauge type ion source with a permanent magnet for a MeV compact ion microbeam system
IBTM-05	Sang-hun Lee	# 99	New Installation of AMS at Dongguk University
IBTM-05	Sukesh Ram	# 332	High Resolution Ion Beam Analysis of GaAs(100) Oxides combined with Electron Spectroscopy for Chemical Analysis (ESCA/XPS) and Surface Energy Analysis: Comparison with Si(100)
IBTM-05	Matthew Ryan Chancey	# 397	Measurement of Helium Diffusion through Nuclear Reaction Analysis
IBTM-05	Kohtaku Suzuki	# 23	Measurement of $\alpha$ - <sup>7</sup> Li scattering cross-section for time-of-flight and transmission ERDA
ISM-02	Oleksandr Morozov	# 86	Temperature range of helium retention in austenitic stainless steel implanted helium at different temperatures: 100, 300 and 620 K
ISM-03	Daniel Jones	# 109	Synthesis of Nickel nanoclusters embedded within Indium Phosphide lattice via low energy ion implantation
ISM-03	Vitalij Kovalevskij	# 122	Implementation of high energy ions implantation for the adjustments of properties of complex semiconductor structures
ISM-03	Oleksandr Morozov	# 87	Deuterium concentrations in austenitic stainless steel by deuterium irradiation. Effects dose and temperature irradiation
ISM-03	Gerard Munyazikwiye	# 255	Development of Ion Beam Induced Luminescence (IBIL) and Proton Beam Induced UV Spectroscopy (PUV) at the Ion Beam Modification and Analysis Laboratory
ISM-03	Olakunle Oluwaleye	# 96	Modification of Indium Tin Oxide (ITO) thin films on glass substrate by Vanadium keV ion implantation: Structural, electrical and optical properties
ISM-03	Gnansagar Patel	# 88	Impact of Ionizing Radiation and Additive on Chitosan-based Biodegradable Matrices
ISM-05	Yang Tan	# 6	Selection of positive and negative photoconductance in doped black phosphorus with ultra-broad response from 632.8 nm to 10 um
ISM-06	Emily Aradi	# 10	A review on the role of ion implantation of h-BN in the nucleation of c-BN nanocrystals
MA-01	Grazia Gambarini	# 137	Studies of Fricke-PVA-GTA xylenol orange hydrogels for 3D measurements in radiotherapy dosimetry
MA-01	Tetsuya Nakanishi	# 47	Development of a very wideband RF-knockout system for a spot scanning irradiation
MA-05	Richard Fink	# 43	Isotopic Targets with Graphene Backing
MA-06	Yueh-Chung Yu	# 63	Studies of Boron-10 Doped Nanodiamonds Made by Ion Implantation for Boron Neutron Capture Therapy
NBAT-02	Oksana Kozak	# 277	High energy proton interactions in organic tissue
NST-01	Rodolfo Cuerno	# 172	Concurrent segregation and erosion effects in medium-energy iron beam patterning of silicon surfaces
NST-01	Nicholas Termini	# 150	Tailoring Si Nanocone Arrays via Simultaneous Low Energy Helium Ion Sputtering on Metal and Si Surfaces
RE-03	Nimmala Arun	# 66	Sensitivity of HfO <sub>2</sub> based RRAM devices to gamma irradiation
RE-03	Monia Kazemeini	# 91	Study of Radiation Effects in Electronics of a Hexapod Robotic Platform
RE-03	Maher Soueidan	# 22	Heat transport in silicon carbide bombarded by proton beams
RE-03	Kyle L. Coutee	# 404	Electret formation by substrate charging method using MeV protons
RE-04	Wilson Hawkins	# 378	Electron Emission from Fast Ion Interactions with Metallic and Biological Materials

**\*Posters will be presented both Monday & Tuesday evening\***

Topic	Presenter	Ab	Title
RE-04	Jiri Vacik	# 289	Synthesis and modification of Ti <sub>2</sub> SnC nanolaminates with high-fluence ions
RE-04	Hui Wang	# 291	Enhanced radiation tolerance of YSZ/Al <sub>2</sub> O <sub>3</sub> multilayered nanofilms with pre-existing nanovoids
RE-05	Ian Swainson	# 79	SMoRE-II Round Robin of Irradiated T91 Steel
RE-06	Sidney G. Freyaldenhoven	# 163	Analysis of Leg Bones of Rats exposed to Simulated Microgravity and Space Radiation
SD-02	Tobias Achtzehn	# 95	The Use of Fast-Neutron Imaging Detectors for Security Applications
SD-04	Aaron Fetterman	# 361	Design of a high-repetition-rate gamma-ray source based on Inverse Compton Scattering
SP-01	Lucas Sigaud	# 165	Assessing the potentiality of the 250KV-SSAMS for stopping power measurements at low energies
SP-02	Alan Salcedo Gomez	# 398	Background characterization at the High Flux Isotope Reactor (HFIR) for PROSPECT
SP-03	Daniel Bardayan	# 222	Transfer of the Oak Ridge Enge Split-Pole Spectrograph to Notre Dame
SP-03	Jian Ding	# 318	Piercing the Veil of Modern Physics. Part 3 & Superconductivity
SP-03	Douglas Soltesz	# 40	Use of ( <sup>3</sup> He,n) Indirect Measurements to Study H and He burning reactions in Type-1 X-Ray Bursts
SP-06	Ajay Sharma	# 125	Binding energy and Einstein's mass energy equation
SP-08	Durga Siwakoti	# 89	High resolution β-decay study of neutron rich <sup>74</sup> Zn into odd-odd <sup>74</sup> Ga using LeRIBSS
TA-01	Sajju Chalise	# 145	Proton Induced X-ray Emission (PIXE) Analysis to Measure Trace Metals in Soil along the East River in Queens, NY
TD-02	Jonathan Edelen	# 209	Neural network based virtual diagnostics at FAST
TD-02	Nicholas Goldring	# 98	A Multiphysics Simulation Tool for Vacuum System Design and Optimization for Next Generation Light Sources
TD-03	John Buttles	# 339	Development of Novel Seamless Cavity Forming Methods
TD-03	Marisol Hermosillo	# 147	Axial Emission Rate of Charged Particles from a Dual-Solenoid Magnetized Plasma
TD-04	Oswaldo Otero Olarte	# 210	Study of electron cyclotron resonance acceleration by cylindrical TE <sub>011</sub> mode