



**UNITED** Scientific Group  
A non-profit organization



**Physics**

July 18-21, 2022 | San Francisco, CA | Hybrid

INTERNATIONAL CONFERENCE ON

# PHYSICS AND ITS APPLICATIONS

JULY 18-21, 2022 | SAN FRANCISCO, CA

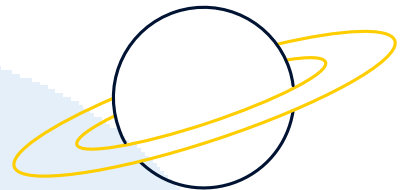
## VENUE

### In-Person

DOUBLETREE BY HILTON  
SAN FRANCISCO AIRPORT  
SAN FRANCISCO, CA

### Virtual

PACIFIC TIME (US)



[ps://physics.unitedscientificgroup.org/](https://physics.unitedscientificgroup.org/)

# IN-PERSON MEETING GUIDELINES

## COVID-19 safety policies

The health and safety of all our participants remains our top priority. We are closely monitoring government mandates and policy changes, Centers for Disease Control and Prevention (CDC) guidelines and public health advancements (<https://www.cdc.gov/>).

## Face-coverings

Wearing mask is recommended in the meeting premises / in-doors.

## Hand sanitizer stations

Hand and washing facilities and/or sanitizing systems easily accessible to everyone throughout the event.

## No contact policy

To assist in minimizing potential physical contact, elbow bumps are a great alternative to handshakes.

## Presentations (PPT/PPTX/PDF)

To avoid physical contact, we request all the in-person presenters to submit the presentation at: [https://physics.unitedscientificgroup.org/submit\\_presentation](https://physics.unitedscientificgroup.org/submit_presentation)

## WiFi

WiFi network and pass code will be shared on arrival to the meeting room.

## Q & A

Moderator/Chair will pick up questions from the audience in the meeting room (at venue) and also from the zoom chat function – and ask the speaker to answer live.

# Meeting Joining Links (Live Streaming on Zoom Platform)

## PACIFIC TIME

As the conference is hybrid, the virtual attendees can access the in-person presentations and queries can be asked through zoom chat box.

Meeting links shared will be for the complete meeting to join at any point of time.

### General Session

Physics and its Applications | JULY 18-21, 2022 | San Francisco, CA | Hybrid

### Join Zoom Meeting – Pacific Time

<https://us06web.zoom.us/j/87281685963?pwd=WHJYK1RsZGNZSWtEaDJlVE81Y0pydz09>

Meeting ID: 872 8168 5963

Passcode: 633534

## Pacific Time

Join the meeting

<https://us06web.zoom.us/j/87281685963?pwd=WHJYKIRsZGNZSWtEaDJlVE81Y0pydz09>

Meeting ID: 872 8168 5963

Passcode: 633534

08:30-08:45 Registrations & Badge Pickup

@Fire Place Side

08:45-09:00 Opening Ceremony

Chair: **Serhat Alagoz**, University of Alberta, Canada

## Plenary Presentation

09:00-09:40

**Super-Thermal Evaporation of Water by Visible Light: Photomolecular Effect**

**Gang Chen**, MIT, Cambridge, MA



Gang Chen is the Carl Richard Soderberg Professor of Power Engineering at Massachusetts Institute of Technology (MIT). He served as the Department Head of the Department of Mechanical Engineering at MIT from 2013 to 2018. His research interests center on nanoscale thermal transport and energy conversion phenomena and their applications in energy storage and conversion, thermal management, and water treatment and desalination. He received an NSF Young Investigator Award, an R&D 100 award, an American Society of Mechanical Engineers' (ASME) Heat Transfer Memorial Award, an ASME Frank Kreith Award in Energy, a Nukiyama Memorial Award by the Japan Heat Transfer Society, a World Technology Network Award in Energy, an Eringen medal from the Society of Engineering Science, and the Capers and Marion McDonald Award for Excellences in Mentoring and Advising from MIT. He is a fellow of American Association for the Advancement of Science, American Physical Society, the ASME, and the Guggenheim Foundation. He is an academican of Academia Sinica, a member of the American Academy of Arts and Sciences and the US National Academy of Engineering.

## Keynote Presentations

09:40-10:10

**New Thoughts, Suggestions, and Results about the Mysterious World of Elementary Particles, Dark Matter, and Dark Energy**

**Thomas J. Buckholtz**, Ronin Institute, Montclair, NJ



Thomas J. Buckholtz received a PhD in physics from the University of California, Berkeley, after receiving a BS in mathematics from the California Institute of Technology. His work includes publications in physics; mathematics; computer science; innovation; service science; and information usage, systems, and technology. His contributions to society span aspects of research and development, business, government, education, not-for-profit endeavors, startup enterprises, and the environment.

10:10-10:40

### Atomically Precise Chemical, Physical, Electronic, and Spin Contacts and Interfaces

**Paul S. Weiss**, University of California, Los Angeles, CA



Paul S. Weiss is a nano scientist and holds a UC Presidential Chair and is a distinguished professor of chemistry, bioengineering, and materials science at UCLA. He studies the ultimate limits of miniaturization, developing new tools and methods for atomic-resolution and spectroscopic imaging, chemical patterning, and quantum information science. He has won awards in science, engineering, teaching, publishing, and communications. He is a fellow of the American Academy of Arts & Sciences, AAAS, ACS, AIMBE, APS, AVS, Canadian Academy of Engineering, Chemical Research Society of India, Chinese Chemical Society, IEEE, and MRS. He was the founding editor-in-chief of ACS Nano.

10:40-11:10

### Two-Dimensional Materials as Platform for Basic Physics Exploration

**Boris Yakobson**, Rice University, Houston, TX

**Sunny Gupta**, University of California, Berkeley, CA



Yakobson is the Karl F. Hasselmann Chair in Engineering. He holds a joint appointment between the Department of Materials Science and NanoEngineering and the Department of Chemistry. In 2008, He received a Nano 50 Award from the science magazine, Nanotech Briefs, for his innovation in nanotechnology, and in 2009, the Department of Energy R&D Award. He received his Ph.D. in 1982 from the Russian Academy of Sciences. He is an editorial board member of the Journal of Nanoparticle Research and a member of the American Physical Society and the Electrochemical Society.

11:10-11:25

Coffee Break

@SIERRA Foyer

## Oral Presentations

### Session-I: Condensed Matter Physics | Nuclear Physics | Radiation Physics | Fluid Physics

- 11:25-11:45 **Unification of Physics over Entire Range of Quantum-Atomic-Celestial World**  
**Debabrata Saha**, Independent Research Scientist, India
- 11:45-12:05 **Emergence of Floquet Topological Phases in Low Dimensional Systems**  
**Alexander Lopez**, Higher Polytechnic School of the Coast, Ecuador
- 12:05-12:25 **Atomic Semiconductor *via* Flat Phonon Bands in HfO<sub>2</sub>**  
**Jun Hee Lee**, Ulsan National Institute of Science and Technology, South Korea
- 12:25-12:45 **Novel Switching Characteristics of Metal-Oxide based Memory Devices Under Cryogenic Temperatures**  
**Serhat Alagoz**, University of Alberta, Canada
- 
- 12:45-12:50 **Group Photo** @SIERRA-A
- 
- 12:50-13:40 **Lunch Break** @Courtyard
- 
- 13:40-14:00 **Vacuum Energy and the Riemann Zeta Function**  
**Siamak Tafazoli**, Ronin Institute, Montclair, NJ
- 14:00-14:20 **Earth's Energy Imbalance Measured from Space with the INSPIRE-SAT CubeSat Constellation**  
**M Meftah**, CNRS/LATMOS, France
- 14:20-14:40 **Impact of Nanostructure Core-Shell on the Dielectric Properties**  
**Cecile Autret Lambert**, University of Tours, France
- Chair: Siamak Tafazoli**, Ronin Institute, Montclair, NJ
- 14:40-15:00 **What Can and Cannot be Expected from Tokamak Fusion**  
**Leonid E Zakharov**, LiWFusion, Princeton, NJ
- 15:00-15:20 **Some Applications of the Pulsed Photoacoustic in Biomedicine**  
**Argelia Perez Pacheco**, General Hospital of Mexico Dr. Eduardo Liceaga, Mexico
- 15:20-15:40 **Projection-Based X-ray Blood Velocimetry: Its Problem and Potential Solutions**  
**Zifeng Yang**, Wright State University, Dayton, OH
- 15:40-16:00 **Fluid Gauge Theory Applied to Kundt's Experiment**  
**Tsutomu Kambe**, University of Tokyo, Japan
- 16:00-16:20 **General Propose Devices as Radiation Sensors: MOSFET and Photodiodes**  
**Miguel Angel Carvajal Rodriguez**, University of Granada, Spain
- 16:20-16:40 **Electro-Physical Aggregate Sensors for Concrete Damage Monitoring**  
**Jeong-Tae Kim**, Pukyong National University, South Korea
- 16:40-17:00 **Enhancement of Nonlinear Optical Response in the Mid-Infrared Induced by Hot Carrier Effect**  
**Ching Fuh Lin**, National Taiwan University, Taiwan
- 17:00-17:20 **High-Cycle and Very High-Cycle Fatigue Strength of Shot Peened Steel**  
**Nak Sam Choi**, Hanyang University, South Korea

17:20-17:40 **Electrical Conduction Behaviour of Apatites**  
**Sadhana Agrawal**, National Institute of Technology Raipur, India

**17:40-18:40 Poster Presentations & Drinks @Redwood/Sequoia**

- P-01 **A Study on the Material Properties of Flexible Structural Deformation of Mg and Mn-based Oxygen Carrier Particles Used in Chemical Cycle Combustion**  
**Namgyu Son**, Yeungnam University, South Korea
- P-02 **Measurement of Transmission Length by X-ray Photon Counting Method**  
**Hiroki Kase**, Shizuoka University, Japan
- P-03 **Quadruplex DNA Nanostructures for Biomedical Applications**  
**Gayong Shim**, Soongsil University, South Korea
- P-04 **Highly Efficient Hydrogen Evolution Reaction Performance of Bi<sub>2</sub>S<sub>3</sub>/rGO in Carbon Paper Electrodes**  
**Su Jeong Kim**, Yeungnam University, South Korea
- P-05 **Switching of a Type I to an All-Solid-State Z-Scheme Heterojunction by an Electron Mediator rGO Bridge**  
**Hyerim Park**, Yeungnam University, South Korea
- P-06 **Surface Defects, Optical Properties of CdS@WS<sub>2</sub> Photocatalyst and the Efficiency of Hydrogen Generation**  
**Tae Seong Kim**, Yeungnam University, South Korea
- P-07 **Optical Properties and Physicochemical Properties of Photocatalysts Manufacturing Copper and Zinc Oxide Hydrolysis Hydrogen**  
**Byung Hyun Park**, Yeungnam University, South Korea

19:00-20:00 Dinner

**End of Day-1**

Pacific Time

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## Session-II: Mathematical Physics | Computational Physics | Statistical Physics

Chair: **Adar Kahana**, Brown University, Providence, RI

### Keynote Presentation

08:00-08:30

#### Recent Trend in Physics and Chemistry of Nuclear Transmutation for Sustainability

**Il Soon HWANG**, Ulsan National Institute of Science and Engineering, South Korea



Il Soon HWANG is a Chaired Professor has been leading Korea national R&D programs on nuclear transmutation and non-refueling micro reactor R&D in support of global decarbonization at the Ulsan National Institute of Science and Technology (UNIST), also as the president of International Forum for Reactor Aging Management (IFRAM). When he was Professor of Nuclear Engineering at Seoul National University (SNU) and Research Scientist and Visiting Associate Professor at MIT, he focused on nuclear materials and spent nuclear fuel transmutation developments. His current research focus includes transportable micro reactor development in support of Gen-IV lead fast reactors (LFR) and nuclear fuel cycle technology.



## Oral Presentations

- 08:30-08:50 **Deep-Learning Method for Locating Sources in Underwater Acoustics with High Noise**  
**Adar Kahana**, Brown University, Providence, RI
- 08:50-09:10 **Introduction to Solitons and Applications**  
**Solomon Manukure**, Florida A&M University, Tallahassee, FL
- 09:10-09:30 **Ultrametric Diffusion, Rugged Energy Landscapes and Transition Networks**  
**W A Zuniga Galindo**, University of Texas Rio Grande Valley, Edinburg, TX
- 09:30-09:50 **Berezin Integral as a Limit of Riemann Sum**  
**Roman Sverdlov**, University of New Mexico, Albuquerque, NM
- 09:50-10:10 **Frontiers in Fractional Schrödinger Equation and Results in B-polynomial Basis Set**  
**Muhammad Bhatti**, University of Texas Rio Grande Valley, Edinburg, TX
- 
- 10:10-10:25 **Break** @Sierra Foyer
- 
- 10:25-10:45 **Defect in Gauge Theory, Quantum Spins, and KZ-Equation**  
**Norton Lee**, IBS Center for Geometry and Physics, South Korea
- 10:45-11:05 **Janus MXY (M = Pd, Pt; X, Y = S, Se, Te) Transition-Metal Dichalcogenide**  
**Wajood Diery**, King Abdulaziz University, Saudi Arabia
- 11:05-11:25 **Simulations of Cosserat Materials and Dynamic Recrystallisation**  
**Thomas Blesgen**, TH Bingen, Germany
- 11:25-11:45 **Molecular Dynamics Algorithm for Simulating KeV Particles Bombardment**  
**Ramon Xulvi Brunet**, National Polytechnic School, Ecuador
- 11:45-12:05 **Quantum Annealing *via* Path-Integral Monte Carlo with Data Augmentation**  
**Yazhen Wang**, University of Wisconsin-Madison, Madison, WI
- 12:05-12:25 **Heavy-Tailed Distributions of Volume and Price-Change Resulting from Strategy Coordination and Decision Noise**  
**Michael Campbell**, Aurislink and SAP Research, Anaheim, CA
- 12:25-12:45 **From Classical to Quantum Stochastic Process**  
**Soham Biswas**, University of Guadalajara, Mexico
- 12:45-13:05 **Control of Persistent Photoconductivity for Photoelectric Memory Through the Bias Voltage in Van Der Waals Heterojunctions**  
**Yaping Qi**, Macau University of Science and Technology, Macau, China
- 
- 13:05-13:50 **Lunch Break** @Court Yard
- 
- Chair: Cecile Autret Lambert**, University of Tours, France
- 13:50-14:10 **Converting Richard Feynman to Digital Mechanics**  
**Edward Fredkin**, Carnegie Mellon University, Pittsburgh, PA
- 14:10-14:30 **Edge Modes in Narrow Nanoribbons of Transition Metal Dichalcogenides in a Topological  $1T'$  Phase**  
**Viktor Sverdlov**, Vienna University of Technology, Austria

- 14:30-14:50 **Transfer-based Swabs for Surface-Enhanced Raman Scattering with Electrohydro-dynamically Fabricated Nanostructures**  
**Dae Joon Kang**, Sungkyunkwan University, South Korea
- 14:50-15:10 **Innovative Applications of Convergent Radiation Beam in Biomedicine**  
**Rodolfo Figueroa**, Border University, Chile
- 15:10-15:30 **Photon-Charge Counting X-ray Energy Dispersive Imaging Detector**  
**Toru Aoki**, Shizuoka University, Japan
- 15:30-15:50 **Physics of Loewner Evolution: Theory and Applications**  
**Yusuke Shibasaki**, Nihon University, Japan
- 15:50-16:10 **A Physical Interpretation of the Anomalous Phenomenology Underlying the Ionic-electronic Defect Nature of Perovskite Optoelectronic Devices**  
**Enrique Hernandez Balaguera**, King Juan Carlos University, Spain
- 16:10-16:30 **The Influence of Quantum Computing in the Business World**  
**Arit Kumar Bishwas**, PricewaterhouseCoopers, India
- 16:30-16:50 **The Ultrasounds Utilized as Promoters of Heat Transfer Enhancement in Natural Convection**  
**Carlo Bartoli**, University of Pisa, Italy

**End of Day-2**

## Pacific Time

Join the meeting

<https://us06web.zoom.us/j/87281685963?pwd=WHJYK1RzZGNZSWtEaDJlVE81Y0pydz09>

Meeting ID: 872 8168 5963

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05:50-6:00

Opening Remarks & Introduction

## Keynote Presentations

Chair: **Anna Vershynina**, University of Houston, Houston, TX

06:00-06:30

### Supercontinuum Generation of OAM Modes in Fiber

**Yang Yue**, Xi'an Jiaotong University, China



Yang Yue is a Professor with the School of Information and Communications Engineering, Xi'an Jiaotong University, China. Dr. Yue's current research interest is intelligent photonics, including optical communications, optical perception, and optical chip. He has published over 200 peer-reviewed journal papers (including Science) and conference proceedings with >9,000 citations, five edited books, two book chapters, >50 issued or pending patents. He is an Associate Editor for IEEE Access, Editor Board Member for three other scientific journals, Guest Editor for >10 journal special issues. He also served as Chair or Committee Member for >80 international conferences, Reviewer for >60 prestigious journals.

06:30-07:00

### Rotating Lepton Model (RLM): Coupling Relativity, Quantum Mechanics and Neutrinos for the Synthesis of Matter

**C G Vayenas**, University of Patras, Greece



C. G. Vayenas currently works at the Department of Chemical Engineering, University of Patras. C. He does research in Chemical Thermodynamics, Catalysis, Electrochemistry, Gravity and Particle Physics. Their current projects are the 'Electrochemical Promotion of Catalysis (EPOC)'. and the "Rotating Lepton Model": His main research interests are in Physical Chemistry and In Gravity and Particle Physics.

07:00-07:30

### Probing Two-Dimensional Materials with Quantum Theory and Atomic-Resolution Microscopies

**Sokrates T Pantelides**, Vanderbilt University, Nashville, TN



Sokrates T. Pantelides received a Ph.D. in physics from the University of Illinois at Urbana-Champaign in 1973. He served as Research Staff Member, Manager, Senior Manager and Program Director at the IBM T. J. Watson Research Center. He joined Vanderbilt University as the McMinn Professor of Physics in 1994. In 2010 he was appointed University Distinguished Professor of Physics and Engineering. His research work is theoretical/computational and spans semiconductor physics, device physics, 2D materials and nanostructures, complex oxides, nanocatalysis, magnetic phenomena, and interactions of light with matter. He is a Fellow of APS, MRS, AAAS, and IEEE.

## Plenary Presentation

07:30-08:10

### From Triboelectric Nanogenerators to Maxwell Equations for Mechano-Driven Slow-Moving Media Systems

**Zhong Lin Wang**, Georgia Institute of Technology/Beijing Institute of Nano Energy and Nano Systems, China



Zhong Lin Wang is the Director of the Beijing Institute of Nanoenergy and Nanosystems, Chinese Academy of Sciences, and Regents' Professor at Georgia Institute of Technology. Dr. Wang pioneered the nanogenerators and the fields of piezotronics and piezo-phototronics. Wang has received the Albert Einstein World Award of Science (2019); ENI award in Energy Frontiers (2018).. He was elected as a foreign member of the Chinese Academy of Sciences in 2009, member of European Academy of Sciences in 2002, He is the founding editor and chief editor of an international journal Nano Energy, with an impact factor of 17.88.

08:10-08:20 Break

Session-I: Mathematical Physics | Computational Physics |  
Statistical Physics | Instruments & Instrumentation

Chair: **Tadashi Ogitsu**, Lawrence Livermore National Laboratory, Livermore, CA

- 08:20-08:40 **Calculation of the Electromagnetic Self-Force of Spatially Extended Charged Objects**  
**Georgeta Vaman**, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering, Romania
- 08:40-09:00 **Constitutive Laws for Continua with Partially Constrained Microstructure**  
**Pasquale Giovine**, Mediterranea University of Reggio Calabria, Italy
- 09:00-09:20 **Causality and Linking and the Additional Steps Needed to Make these Results Applicable**  
**Vladimir Chernov**, Dartmouth College, Hanover, NH
- 09:20-09:40 **On the Philosophical Significance of Poo**  
**Chris Jeynes**, University of Surrey Ion Beam Centre, UK
- 09:40-10:00 **A Study of Structural, Vibrational, Electronic and Transport Properties of Single-walled Carbon Nanotube – Single-layer Graphene Hybrid Nanostructures**  
**Juhi Srivastava**, Indian Institute of Technology Kanpur, India
- 10:00-10:20 **Multi-Fidelity Bayesian Learning and Optimization for Physical Simulation and Its Applications**  
**Shandian Zhe**, University of Utah, Salt Lake City, UT
- 10:20-10:40 **Nonperturbative Studies of Functional Materials Under Nonequilibrium Conditions**  
**Tadashi Ogitsu**, Lawrence Livermore National Laboratory, Livermore, CA
- 10:40-11:00 **AdS–dS Stationary Rotating Black Hole Exact Solution within Einstein–Nonlinear Electrodynamics**  
**Alberto A. Garcia-Diaz**, Center for Research and Advanced Studies of the National Polytechnic Institute, Mexico

11:00-11:15 Break

Chair: **Anna Vershynina**, University of Houston, Houston, TX

- 11:15-11:35 **Convex Analysis Behind the Data Processing Inequality**  
**Anna Vershynina**, University of Houston, Houston, TX
- 11:35-11:55 **Monodromy and Weight Modules**  
**Dotsenko Egor**, ITEP, Russia
- 11:55-12:15 **Fast Direct Solvers for Electromagnetic, Optics, Acoustic, and Elastic Applications**  
**Yang Liu**, Lawrence Berkeley National Laboratory, Berkeley, CA
- 12:15-12:35 **Global Existence and Life Span of Smooth Solutions of Biwave Maps**  
**Yuan Jen Chiang**, University of Mary Washington, Fredericksburg, VA
- 12:35-12:55 **Modelling Atomic Law (bounce), the Surface Flow and its Wake**  
**Tafireyi Nemauro**, Independent Researcher, UK
- 12:55-13:15 **The Origin of Irreversibility in Thermodynamic Processes**  
**Emil Roduner**, University of Stuttgart, Switzerland

13:15-13:30 Break

Chair: **Mei Yin**, University of Denver, Denver, CO

13:30-13:50 **The PISQ-based Quantum Research**  
**Koen Bertels**, University of Porto and Qbee, Belgium

13:50-14:10 **Efficient Asymmetric Collisional Thermal Engines**  
**Carlos E Fiore**, University of Sao Paulo, Brazil

14:10-14:30 **Terahertz Reading of Ferroelectric Domain Wall Dielectric Switching**  
**Haixue Yan**, Queen Mary University of London, UK

14:30-14:50 **Statistical Physics of Exponential Random Graphs**  
**Mei Yin**, University of Denver, Denver, CO

14:50-15:10 **Properties of a THz-sub-THz Coherent Undulator and Cherenkov Radiations Driven by a Low Energy Electron Beam from a Thermionic RF Electron Gun**  
**Alexei V Smirnov**, Advanced Energy Industries, Mountain View, CA

15:10-15:30 **Spintronics-based Field-Programmable Gate Array -Its Overview and Application to Edge-AI Hardware**  
**Daisuke Suzuki**, The University of Aizu, Japan

15:30-15:50 **Dualities of W-Algebras and Feigin-Semikhatov Conjectures**  
**Naoki Genra**, Kavli Institute for the Physics and Mathematics of the Universe (WPI), Japan

15:50-15:55 **Poster Presentation: The Story About the Pick-Up Resonances**  
**Chi Yu Hu**, University of California Long Beach, Long Beach, CA

15:55-16:00 **Poster Presentation: Cooperation Behavior of Evolutionary Game on Networks**  
**Xingwen Liu**, Southwest Minzu University, China

16:00-16:10 Break

16:10-16:30 **Application of Ohmic Heating to Heat Transfer of Magnetohydrodynamic Flow with Variable Pressure Gradient: A Computational Approach**  
**Sharidan Shafie**, University of Technology Malaysia, Malaysia

16:30-16:50 **Band Structure Computation and Analysis of Phononic Crystals Using the Petrov-Galerkin Finite Element Method**  
**Liwei Shi**, China University of Political Science and Law, China

16:50-17:10 **Significance of Riga Plate on Hybrid Casson Nanofluid Flow Treated with Analytical Caputo-Fabrizio Fractional Derivative**  
**Ridhwan Reyaz**, University of Technology Malaysia, Malaysia

## Session-II: Material Physics | Nano-Physics | Acoustics

Chair: **Milind N Kunchur**, University of South Carolina, Columbia, SC

17:10-17:30 **Study of Electrical Conductivity of Solid Solutions between Metal-Like Lead-and Mott Insulator Yttrium Ruthenate Pyrochlores**  
**Sepideh Akhbari Far**, The Catholic University of America, Washington, DC

- 17:30-17:50 **Tunnel Magnetodielectric Effect: Experimental and Theoretical Progress**  
**Yang Cao**, Tohoku University, Japan
- 17:50-18:10 **Elastic Strain Engineering of Diamond**  
**Chaoqun Dang**, Zhejiang University, China
- 18:10-18:30 **Silver Nanostructured Substrates Fabrication by Tollen's Reagent**  
**Aransselly Quiroz**, Pontifical Catholic University of Peru, Peru
- 18:30-18:50 **RIKEN Accelerator-Driven Compact Neutron Systems and their Capabilities for Material Science and Engineering**  
**Yoshie OTAKE**, RIKENE, Japan
- 18:50-19:10 **Smart Textiles for Personalized Health Care**  
**Jun Chen**, University of California, Los Angeles, CA
- 19:10-19:30 **3D Spatialization and its Relationship to Natural Acoustic Localization**  
**Milind N Kunchur**, University of South Carolina, Columbia, SC
- 19:30-19:50 **High-Definition and High-Contrast Ultrasound Imaging by Transmitting Multiple Pulses with Different Carrier Frequencies**  
**Norio Tagawa**, Tokyo Metropolitan University, Japan
- 19:50-20:10 **Novel Multifunctional Gold-Silver-Cinnamon Nanostructures for Biomedicine**  
**Ali Aqeel Salim**, University of Technology Malaysia, Malaysia
- 
- 20:10-20:20 **Break**
- 
- Chair: Mohammed Al Bahri**, A'Sharqiyah University, Oman
- 20:20-20:40 **Towards Practical Implementation of Single-Electron Tunneling via Donor-Induced Quantum Dots in Silicon Nanodevices**  
**Daniel Moraru**, Shizuoka University, Japan
- 20:40-21:00 **Single-Crystal Graphene Device**  
**Masao Nagase**, Tokushima University, Japan
- 21:00-21:20 **Controlling Thermal Magnetization Switching in Magnetic Nanowires for Storage Memory Nanodevices**  
**Mohammed Al Bahri**, A'Sharqiyah University, Oman
- 21:20-21:40 **Structures of Ice Confined in Nanocarbons; WAXS and Neutrons Diffraction (ND) Studies**  
**Sliwinska Bartkowiak**, Adam Mickiewicz University, Poland
- 21:40-22:00 **Complete System of Three Dimensional Helmholtz Equation Using Complex Quaternions**  
**Pablo Moreira**, Anahuac University Mexico, Mexico
- 22:00-22:20 **Study of a Special Case of a Simple Pendulum**  
**Bharat S Rawal**, Capitol Technology University, South Laurel, MD

**End of Day-3**

## Pacific Time

Join the meeting

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Session III: Condensed Matter | Nuclear Physics | Particle Physics | Bio Physics |  
Quantum Physics | Fluid Physics | Lasers, Optics & Photonics

## Oral Presentations

Chair: **Panagiotis E Georgoudis**, GANIL, France

- 06:00-06:20 **Yang-Mills Theory and its Generalized Extension**  
**Bengy Wong Tsz Tsun**, Imperial College London, UK
- 06:20-06:40 **The Dependence of the Parton Distribution Functions on the Momentum Transfer from Structure Function of Nucleon**  
**Hassan Haji Hosseini Mojeni**, Shahrood University of Technology, Iran
- 06:40-07:00 **Suppression of Electromagnetic (EM) Nonradiative Transitions in Atomic Nuclei with a Decrease in the Intensity of Zero-Point Fluctuations of the EM Field**  
**Vladimir Koltsov**, Khlopin Radium Institute, Russia
- 07:00-07:20 **Dominant Resonances in the Electrical Transmission of a Graphene-based System**  
**Enrique Arturo Carrillo**, National Autonomous University of Mexico, Mexico
- 07:20-07:40 **Traffic Models and Traffic-Jam Transition in Quantum (N+1)-Level Systems**  
**Andrea Nava**, University of Calabria, Italy
- 07:40-08:00 **Future Devices and Circuits Propelled by Electron Spins**  
**Jimmy Zhu**, Carnegie Mellon University, Pittsburgh, PA
- 08:00-08:20 **One Century of Research in Superconductivity: A Critical Review**  
**Jacob Szeftel**, LuMIn - ENS-Paris-Saclay, France
- 08:20-08:40 **Conformal Symmetry in Nuclear Physics**  
**Panagiotis E Georgoudis**, GANIL, France
- 08:40-08:45 **Poster Presentation: Synthesis and Study on Structural, Morphological, Optical Properties and Photocatalytic Activity of CuO:Er<sub>x</sub><sup>3+</sup> Photocatalysts**  
**Suganya Velliyan**, University of Madras, India
- 08:45-08:50 **Poster Presentation: Astrophysical Molecular Properties of MgCa**  
**Samir N Tohme**, Temple University, Philadelphia, PA
- 08:50-09:00 **Break**

Chair: **Detlef Hoyer**, Hamburg University of Technology, Germany

- 09:00-09:20 **Comparative Analysis of High-Field Electron Transport in ZnO-based Heterostructures**  
**Linas Ardaravicius**, Center for Physical Sciences and Technology, Lithuania



- 09:20-09:40 **100 years... and Still no Identification!**  
**Jacek Krelowski**, University of Rzeszow, Poland
- 09:40-10:00 **Key Outcomes of Classical Relativity in 5D**  
**Detlef Hoyer**, Hamburg University of Technology, Germany
- 10:00-10:20 **Anisotropic Self-Gravitating System Class I Stellar Model: An Extended Gravitational Decoupling Approach**  
**S.K. Maurya**, University of Nizwa, Oman
- 10:20-10:40 **Quantum Theory from Conceptual Variables**  
**Inge S. Helland**, University of Oslo, Norway
- 10:40-11:00 **Flow-Induced Reconfiguration of Two Tandem Flexible Cylinders**  
**Anne Cros**, University of Guadalajara, Mexico
- 11:00-11:20 **Astrophysical Phenomena Related to the Penrose Process and its Variants**  
**Zdenek Stuchlik**, Silesian University in Opava, Czech Republic
- 11:20-11:40 **First Tomographic Census of Intergalactic Gas in the Late Universe**  
**Jonas Chaves Montero**, Donostia International Physics Center, Spain
- 11:40-12:00 **The Modular Dirac Equation**  
**Christina Rugina**, University of Bucharest, Romania
- 12:00-12:05 **Poster Presentation: Characterization of a Novel Irradiation Method for Small Animal Radiotherapy Using Monte Carlo Methods**  
**Amir Entezam**, Queensland University of Technology, Australia

12:05-12:15 **Break**

**Chair: John F Sutcliffe**, IPEM, IOP, UK

- 12:15-12:35 **The Physics of Photon-Induced Plasmas**  
**Job Beckers**, Eindhoven University of Technology, The Netherlands
- 12:35-12:55 **On-Surface Trapping of Ba Ions by Organic Monolayer**  
**Celia Rogero**, Materials Physics Center, Spain
- 12:55-13:15 **A 3D CFD Modeling for Investigating the Effects of Ventilation within a Road Tunnel in the Event of Fire**  
**Gianluca Genovese**, University of Salerno, Italy
- 13:15-13:35 **Radiation Physics in Medicine**  
**John F Sutcliffe**, IPEM, IOP, UK
- 13:35-13:55 **Three-Nucleon Problem with Solving Relativistic Faddeev Equations**  
**Hiroyuki Kamada**, Kyushu Institute of Technology, Japan
- 13:55-14:15 **Gravity-Driven Granular Avalanches in an Inclined Chute**  
**Xinjun Cui**, Sheffield Hallam University, UK
- 14:15-14:35 **Long-Lasting Desynchronization of Plastic Neuronal Networks by Randomized Coordinated Reset Stimulation**  
**Justus Alfred Kromer**, Stanford University, Stanford, CA
- 14:35-14:55 **Supercritical Thermodynamic Geometry**  
**Jose Luis Lopez**, University of Guanajuato, Mexico

- 14:55-15:15 **Transition Probability Beyond the Fermi's Golden Rule**  
**Kenzo Ishikawa**, Hokkaido University, Japan
- 15:15-15:20 **Poster Presentation: The Estimation of Parameters New UAV-TEM System on Baikal**  
**Yuriy Davydenko**, Irkutsk National Research Technical University, Russia
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- 15:20-15:30 **Break**
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- Chair: Carlos Alberto Stechhahn**, Integrated Colleges Campos Salles, Brazil
- 15:30-15:50 **Perspective for Direct Production of Dark Components in the Universe by Multi-Wavelength Electromagnetic Field Collision**  
**Kensuke Homma**, Hiroshima University, Japan
- 15:50-16:10 **Holographic  $\beta$  Function in de Sitter Space**  
**Yoshihisa Kitazawa**, KEK, Japan
- 16:10-16:30 **Aharonov-Bohm Scattering for Relativistic Particles in (3 + 1)-Dimensional Non-commutative Space with Spin Dependence**  
**Carlos Alberto Stechhahn**, Integrated Colleges Campos Salles, Brazil
- 16:30-16:50 **Study of the Non-Relativistic Energy Spectra of Hyperbolic Function Position Dependent Mass with Symmetric Modified Poschl-Teller Potential Under External Hyperbolic Magnetic Force and AB force Using Laplace Transform**  
**A Suparmi**, Eleven March University, Indonesia
- 16:50-17:10 **Surface-Enhanced Raman Scattering at Metal-Molecule-Metal Junction**  
**Satoshi Kaneko**, Tokyo Institute of Technology, Japan
- 17:10-17:30 **Studies in Effect of Ionizing Radiation on Polymeric Films as Dosimeter**  
**Priyanka Raju Oberoi**, Guru Nanak Khalsa College and Institute of Chemical Technology, India
- 17:30-17:50 **Study of Two-Body Interaction and Three-Body Correlation Between Baryons in a Quark Model**  
**Choki Nakamoto**, National Institute of Technology (KOSEN), Suzuka College, Japan
- 17:50-17:55 **Poster Presentation: Circular Economy: New Opportunities in Sustainable Nano Materials and Polymer Bio-Nanocomposites**  
**Sabu Thomas**, Mahatma Gandhi University, India
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- 17:55-18:05 **Break**
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- Chair: Chao Yao Yang**, National Yang Ming Chiao Tung University, Taiwan
- 18:05-18:25 **Physics and Technology of Photon Collider**  
**Tohru Takahashi**, Hiroshima University, Japan
- 18:25-18:45 **Cuprate Superconductor Driven not by CuO<sub>2</sub> Planes but by Chains**  
**Susumu SASAKI**, Niigata University, Japan
- 18:45-19:05 **Exchange Spring Effect at Antiferromagnet/Ferromagnet Interface Studied by Spin-Orbit Torque**  
**Chao Yao Yang**, National Yang Ming Chiao Tung University, Taiwan
- 19:05-19:25 **Study of Mechanism on Piezoelectricity in Pseudo-Cubic Structure by Material Structural Physics**  
**Sangwook Kim**, Hiroshima University, Japan

- 19:25-19:45 **Anisotropic 3D Quantum Hall Effect in Weyl Semimetals**  
**Xiao Xiao Zhang**, CEMS, RIKEN, Japan
- 19:45-20:05 **Predictions of Physical Quantities in Hypersphere Soliton Model**  
**Soon-Tae Hong**, Sogang University, South Korea
- 20:05-20:25 **Strong Resonance Effects in Ordered Layered Photonic Structures for Metrology, Sensing, Collimation, Signal Processing and Spectroscopy**  
**Eugene Glushko**, Institute of Semiconductor Physics, Ukraine
- 20:25-20:45 **Reflective Digital Holographic Microscopy Using a Single Element**  
**Jose Angel Picazo Bueno**, University of Valencia, Spain
- 20:45-21:05 **The Enhancement of Light Absorption and Emission in Si Based Quantum Dot Heterostructures Coupled with Metamaterials**  
**Anatoly Dvurechenskii**, Novosibirsk State University, Russia
- 21:05-21:25 **Perceived Optical Uniformity of RGB LED Pixelated Light Guides**  
**Karlheinz Blankenbach**, Pforzheim University Display Lab, Germany
- 21:25-21:45 **A Mathematical Formalism to Describe the Thermal Behavior during Spatial Anisotropic Intensity Femtosecond Laser-DNA Interaction**  
**Mihai Oane**, National Institute for Laser, Plasma & Radiation Physics, Romania
- 21:45-22:05 **Chemical Dynamics in Nanoparticles Derives In-Materio Computing AI Devices**  
**Hirofumi Tanaka**, Kyushu Institute of Technology, Japan

End of Day-4

We wish to see you at  
**Physics-2023**



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