POWER MEMS 2025

15 - 18 DECEMBER 2025
ALBUQUERQUE NEW MEXICO

# Preliminary Program

**Conference Chairs:**
Nathan Jackson, University of New Mexico, USA
R. Chris Roberts, University of Texas, El Paso, USA

**Conference Location:**
University of New Mexico Campus
Student Union Building (SUB)

**Sponsored by:**

The Executive Committee has the right to change dates and times if needed.

# TECHNICAL PROGRAM INFORMATION

**Guide to Understanding Paper Numbering**
Each paper in the technical program is assigned a unique number (**T1A-03)** which indicates when the paper is presented. The number of each paper is shown before the paper title.

The first letter (i.e. **T**) indicates the day of the Conference:
T = Tuesday W = Wednesday Th = Thursday

The second number (i.e., **1**) indicates the session

The **third** letter (i.e., **A**) indicates which room the session is held in:
A = Ballroom B B = Ballroom A

The fourth number (i.e. 04) indicates the number of the paper in the session.

**Guide to Understanding Poster Numbering**
Each poster is also assigned a unique number (**P01a**).

The numeric characters (i.e., **01**) are the poster position.

The last character (i.e., **a**) shows the classification of the poster.
**a -** Power Micro and Nanotechnologies for Aerospace Applications
**b -** Materials and Thin Films for Energy Applications
**c -** Energy Harvesting and Power Transfer (Mechanical, Thermal, Solar, Bio, Triboelectric, RF, Acoustic, etc.)
**d -** Actuation and Micro-Propulsion
**e -** Zero and Ultra-Low-Power Sensors and Systems
**f -** Quantum and Photonic Power Technologies
**g -** Applications and Innovations in Micro Energy Systems (Including Power MEMS in Action)
**h -** Fabrication Technologies that Enable All of the Above
**i -** Focus Session: Additive Manufacturing of Microsystems

# Monday, 15 December

All indicated times are Mountain Standard Time (MST).

# PowerMEMS School

**09:00** **PowerMEMS School Check-In**
**2nd Floor Foyer**

**09:30** **Welcome Session**

**09:50** **TBD**
**Santa Anna Room, 2nd Floor**

**10:50** **Break**

**11:00** **Topic 2: Power Electronics for Space Applications**
**Santa Anna Room, 2nd Floor**
Dejana Cucak
University of Texas, El Paso, USA

**12:00** **Lunch**

**13:00** **Topic 3: A Biowaste Materials-Based Low- Cost Environment Friendly Triboelectric Nanogenerator for Self-Powered Sensing Application**
**Santa Anna Room, 2nd Floor**
S.M. Sohel Rana
Noakhali Science and Technology University, BANGLADESH

**14:00** **Break**

**14:05** **Topic 4: Magnoelectric Wireless Power Transfer for Implantable Devices: System Modeling, Optimal Power Delivery, and Transducer Geometry Optimization**
**Santa Anna Room, 2nd Floor**
Binh Duc Truong
University of Michigan, USA

**15:05** **Break**

**14:05** **Topic 5: Direct Ink Writing and Its Role in Energy Harvesting for Wearable Devices**

**Santa Anna Room, 2nd Floor**

Jorge Manrique Castro
University of Texas, El Paso, USA

**16:20** **Break**

**16:30** **Topic 6: Laser Machining for Power Applications**

**Santa Anna Room, 2nd Floor**

Nathan Lazarus
University of Delaware, USA

**17:30** **End of Day**

# Tuesday, 16 December

All indicated times are Mountain Standard Time (MST).

**08:00** **Conference Welcome**

**Ballroom B**

Nathan Jackson, University of New Mexico, USA
R. Chris Roberts, University of Texas, El Paso USA

**08:20** **Plenary Presentation I**

**Session Chair:** Chris Roberts, University of Texas, El Paso, USA

**TPA-01** **MICROWAVE FREQUENCY ACOUSTOELECTRIC PHONONIC INTEGRATED CIRCUITS FOR SINGLE-CHIP RF SIGNAL PROCESSING**
Matthew Eichenfield
University of Arizona, USA

**09:20** **Focus Session I - Additive Manufacturing for Microsystems 1**

**Session Chair:** Nathan Lazarus, University of Delaware, USA

09:20 - 09:50

**TFA-01** **Invited: TWO-PHOTON 3D MICRO/NANOPRINTING AS AN ENABLING TECHNOLOGY TO EMPOWER MEMS**
Ryan D. Sochol
University of Maryland, USA

09:50 - 10:10

**TFA-02** **IN-SITU, IN-PLANE MAGNETIZATION OF ADDITIVELY MANUFACTURED HARD MAGNETS**
Zoey Bigelow and Luis F. Velásquez-García
Massachusetts Institute of Technology, USA

10:10 - 10:30

**TFA-03** **ADDITIVELY MANUFACTURED 3D SCANNING CALORIMETER FOR THERMAL ANALYSIS**
Mehdi Yaghoubi Arzefouni[1], Jacky Borenstein[2], and Benyamin Davaji[1]
[1]Northeastern University, USA and [2]Nano-Dimension, USA

**10:30** **Refreshment Break**

Ballroom B Foyer

**11:00** **Session T1A: Biomedical Power Applications**
**Session Chair:** Peter Woias, University of Freiburg, GERMANY

11:00 - 11:20

**T1A-01** **MINIATURIZED MULTIPLEXED PIEZOELECTRIC FORCE SENSOR FOR HIGH-RESOLUTION MULTI-DIRECTIONAL INTRABODY PRESSURE MONITORING**

Xiaotong Guo[1], Qindong Zheng[1], Jinshi Zhao[1], Bing Li[2], and Eric M. Yeatman[1,3]
[1]Imperial College London, UK, [2]University College London, UK, and [3]University of Glasgow, UK

11:20 - 11:40

**T1A-02** **NATURE-INSPIRED CARROT-BASED GREEN TRIBOELECTRIC NANOGENERATOR FOR SELF-POWERED SPORTS ACTIVITY MONITORING**

Anamika Barua, Kamaruz. Zaman, and S M Sohel Rana
Noakhali Science and Technology University, BANGLADESH

11:40 - 12:00

**T1A-03** **OPTIMAL PERFORMANCE OF MAGNETOELECTRIC TRANSDUCERS FOR WIRELESS POWERING OF BIOMEDICAL IMPLANTS**

Reagan Healy and Binh D. Truong
University of Michigan, USA

**12:00** **Poster Session Preview**
**Session Chair: Chris Roberts**

**12:30** **Lunch**

**13:30** **Session T2A: Applied Power Systems**
**Session Chair:** Honma Hiroaki, Kobe University, JAPAN

13:30 - 13:50

**T2A-01** **AN OPTIMISED METASURFACE-BASED VERTICAL AXIS WIND ENERGY HARVESTER FOR POWER-AUTONOMOUS MONITORING IN PIPING AND DUCTING SYSTEMS**

Sayed N. Masabi[1], Tianhui Li[1], Sam Valentine[1], Antonio Di Buono[2], Amal Z. Hajjaj[1], and Stephanos Theodossiades[1]
[1]Loughborough University, UK and [2]United Kingdom National Nuclear Laboratory, UK

13:50 - 14:10

**T2A-02** **MULTI-COIL-BASED WIRELESS STIMULATION AND SENSING FOR ZERO-DC-POWER PASSIVE SPHERICAL SOIL MOISTURE SENSOR AND SYSTEM DESIGN**

Sheng Ding[1], Qiwu Zhang[1], Shad Roundy[1], Kam K Leang[1], Cody Zesiger[2], and Darrin J Young[1]
[1]University of Utah, USA and [2]Utah State University, USA

14:10 - 14:30

**T2A-03** **NEAR-SURFACE GEOTHERMAL ENERGY HARVESTING: A STUDY ON AVAILABLE ENERGY BUDGETS AND TEMPERATURE GRADIENTS**
Timo Gerach, Suman Kundu, Julian Brzozon, Helmer Schack-Kirchner, and Peter Woias
University of Freiburg, GERMANY

**14:30** **Refreshment Break**
**Ballroom B Foyer**

**14:30** **Poster Session**
**Ballroom B**

## a - Power Micro and Nanotechnologies for Aerospace Applications

**P01a** **AIRCRAFT STRUCTURAL HEALTH MULTI-SENSOR WIRELESS NODE POWERED BY ENERGY HARVESTING**
Jaime G. Alonso[1], Robin Berguerand[2], Adrien Candelotto[3], Alexis Carriere[3], Philippe Dallemagne[2], Andrew S. Holmes[4], Daniel Iniesta[1], Michail E. Kiziroglou[4,5], David Marty[3], Damien Piguet[2], Steven W. Wright[4], and Eric M. Yeatman[4,6]
[1]Airbus Defense and Space, SPAIN, [2]CSEM, SWITZERLAND, [3]Serma Ingenierie, FRANCE, [4]Imperial College London, UK, [5]International Hellenic University, GREECE, and [6]University of Glasgow, UK

## b – Materials and Thin Films for Energy Applications

**P03b** **MAXIMUM SURFACE POTENTIAL OF POTASSIUM ION ELECTRET AS A FUNCTION OF FILM THICKNESS**
Masahiro Mikasa[1], Hiroaki Honma[1,2], Hiroshi Toshiyoshi[2], Akio Uesugi[1], Koji Sugano[1], and Yoshitada Isono[1]
[1]Kobe University, JAPAN and [2]University of Tokyo, JAPAN

## c – Energy Harvesting and Power Transfer (Mechanical, Thermal, Solar, Bio, Triboelectric, RF, Acoustic, etc.)

**P04c** **FEASIBILITY ASSESSMENT OF PIEZOELECTRIC ENERGY HARVESTING FROM AIRCRAFT LANDING GEAR FOR POWERING ONBOARD SENSORS**
Samuel Metson, Shamim Ahmed, and Yu Jia
Aston University, UK

**P05c** **MULTIPLE MASS REPOSITIONING SYSTEM TO ENHANCE BANDWIDTH OF PIEZOELECTRIC ENERGY HARVESTER**
Nico E. Galarza Morales, and Nathan Jackson
University of New Mexico, USA

**P06c** **ENERGY HARVESTING FROM ARTERY MOTIONS USING MEMS-BASED STENT-LIKE PIEZOELECTRIC STRUCTURES TO POWER IMPLANTABLE MEDICAL DEVICES**
Ravindu Wijekoon and Dulsha Kularatna-Abeywardana
University of Auckland, NEW ZEALAND

**P07c** **SUSTAINABLE SOLUTION-BASED TEXTILE-TRIBOELECTRIC NANOGENERATORS FOR SELF-POWERED PRESSURE SENSING**
Xinlong Sun and Stephen Beeby
University of Southampton, UK

**P08c** **VIBRATION ENERGY HARVESTER APPLIED TO SELF-POWER INTELLIGENT TIRE**
Yuteng Jing, Weihan Xu, Shanghao Gu, and Fei Wang
Southern University of Science and Technology, CHINA

## d – Actuation and Micro-Propulsion

**P09d** **MODEL-FREE ADAPTIVE CONTROL OF A HIGH-PRECISION MILLIMETER DELTA ROBOT**
Tianzhe Zhang[1], Xu Chen[1], Michail E. Kiziroglou[1,2], and Eric M. Yeatman[1,3]
[1]Imperial College London, UK, [2]International Hellenic University, GREECE, and [3]University of Glasgow, UK

## e - Zero and Ultra-Low-Power Sensors and Systems

**P10e** **SELF-POWERED SOLAR ANGLE SENSING DEVICE FOR HIGH ACCURACY SOLAR ANGLE MEASUREMENT SYSTEMS TO MAXIMIZE ENERGY CAPTURE**
Yifeng Liu, Xiangyu Zhao, Qingfeng Wu, Ziyang Ou, and Xiaohong Wang
Tsinghua University, CHINA

## f - Quantum and Photonic Power Technologies

**P11f** **MECHANICAL TRANSFER OF 2D GRAPHENE FROM SAPPHIRE TO SILICON SUBSTRATES**
George Teifel, Angel Mata, and Sakineh Chabi
University of New Mexico, USA

## g - Applications and Innovations in Micro Energy Systems (Including Power MEMS in Action)

**P12g** **ENERGY HARVESTING AND HEAT CONDUCTION MODULATION IN PARAFFIN-BASED PCM MICROACTUATORS USING THERMOELECTRIC INTEGRATION**
Stefano Morese, Swathi K. Subhash, Kiran P. Nalli, Suman Kundu, Uwe Pelz, and Peter Woias
University of Freiburg, GERMANY

## h - Fabrication Technologies that Enable All of the Above

**P13h** **MULTI-MATERIAL INK-JET PRINTED MICROSYSTEMS**
Haiyang Yun[1], Mehdi Yaghoubi Arzefouni[1], Amir Shelef[2], Jacky Borenstein[2], and Benyamin Davaji[1]
[1]Northeastern University, USA and [2]Nano-Dimension, USA

**P14h** **A REPRODUCIBLE FABRICATION PROCESS FOR MICRO-STRUCTURED PDMS FILMS TO BE USED IN TRIBOELECTRIC NANOGENERATORS**
Fiza Asif and Peter Woias
University of Freiburg, GERMANY

## i - Focus Session: Additive Manufacturing of Microsystems

**P15i** **FUSED FILAMENT FABRICATION OF INDUCTIVE HEATING ELEMENTS**
Sharmin Jahan, Minhazur Rahman and Nathan Lazarus
University of Delaware, USA

**16:30** **End of Day**

**16:30 - 18:00** **Welcome Reception**
2nd Floor Foyer

# Wednesday, 17 December

All indicated times are Mountain Standard Time (MST).

**08:00** **Exhibitor Table-Top Industry Spotlight**

3D MicroPrint Gmbh

**08:20** **Plenary Presentation II**

**Session Chair:** Nathan Jackson, University of New Mexico, USA

**WPA-01** **MEMS BIOMECHANICAL ENERGY HARVESTERS FOR SELF-POWERED LEADLESS PACEMAKERS**

Elie Leuvre, Francisco Ambia, Etienne Herth, Fabien Parrain, and Alexis Brenes
Université Paris-Saclay, FRANCE

| **Session W1A:**<br>**Fuel Cell Technologies**<br>**Session Chair:** Yuji Suzuki<br>University of Tokyo, JAPAN | **Session W1B:**<br>**Focus Session: Additive Manufacturing for Microsystems 2**<br>**Session Chair:** Nathan Lazarus<br>University of Delaware, USA |
|---|---|
| **Ballroom B** | **Ballroom A** |
| 09:20 – 09:40 | |
| **W1A-01**<br>**SWEAT-DRIVEN MICROBIAL ENERGY HARVESTERS WITH MOISTURE-ENHANCED PROTON DYNAMICS FOR STABLE POWER OUTPUT**<br>Yang Gao, Ruohan Zhang, and Seokheun Choi<br>State University of New York, Binghamton, USA | **W1B-01**<br>**PARAMETERIZATION OF THE 3D PRINTING PROCESS TO FORM CARBON NANOTUBE BLADES FOR ELECTRON FIELD EMISSION ARRAY ON A PRINTED CIRCUIT BOARD**<br>Michał A. Żółtowski, Karolina U. Laszczyk, and Rafał D. Walczak<br>Wroclaw University of Science and Technology, POLAND |
| 09:40 – 10:00 | |
| **W1A-02**<br>**POROUS MEDIA CHARACTERIZATION FOR FUEL CELL OPTIMIZATION: A MESOSCOPIC APPROACH VIA LATTICE BOLTZMANN METHOD**<br>Brayan Ordóñez-Saca[1], Mayken Espinoza-Andaluz[1], Martin Andersson[2], Jan Bohacek[3], and Angel D. Ramirez[1]<br>[1]Escuela Superior Politécnica del Litoral, ECUADOR, [2]Lund University, SWEDEN, and [3]Brno University of Technology, CZECH REPUBLIC | **W1B-02**<br>**DEVELOPMENT OF A WIRELESS IMAGE MONITORING SYSTEM POWERED BY ENERGY HARVESTER**<br>Masahiko Ito[1], Norihiko Itoh[1], and Shimpei Ono[2]<br>[1]Central Research Institute of Electric Power Industry, JAPAN, and [2]Tohoku University, JAPAN |
| 10:00 - 10:20 | |
| **W1A-03**<br>**TOWARD SELF-HEALING, STRETCHABLE, AND WEARABLE MICROBIAL FUEL CELLS FOR SWEAT-BASED ENERGY HARVESTING**<br>Ruohan Zhang, Yang Gao, and Seokheun Choi<br>State University of New York, Binghamton, USA | **W1B-03**<br>**IMPACT OF SYNTHESIS AND AGING OF TITANIUM CARBIDE MXENES FOR PRINTED MICROSYSTEMS**<br>Gabriel A. Saucedo[1], Emilio S. Jackson[1], Zander L. Cox[2], Zavian A. Rodgers[1], and Robert C. Roberts[1]<br>[1]University of Texas, El Paso, USA and [2]Texas A & M, USA |

**10:20** **Refreshment Break**
**Ballroom B Foyer**

| **Session W2A: Wireless Power**<br>**Session Chair:** Daisuke Yamane<br>Ritsumeneikan University, JAPAN | **Session W2B: Microfabrication and Materials for Energy 1**<br>**Session Chair:** Nathan Jackson<br>University of New Mexico, USA |
|---|---|
| **Ballroom B** | **Ballroom A** |
| 10:50 – 11:10 | |
| **W2A-01**<br>**EXPERIMENTAL EVALUATION OF THE EFFECT OF LAYER INTERFACES ON THE PERFORMANCE OF MAGNETOELECTRIC WIRELESS POWER TRANSFER RECEIVERS**<br>Orpita Saha[1], Binh D. Truong[2], and Shad Roundy[1]<br>[1]University of Utah, USA and<br>[2]University of Michigan, USA | **W2B-01**<br>**A NOVEL CATEGORY OF TUNABLE MEMS ENERGY HARVESTERS WITH NONLINEARITY COMPENSATION**<br>Alejandro Godinez Perez Medina[1,2], Sofian Bah[1], Jerome Juillard[2], Etienne Herth[1], and Alexis Brenes[1]<br>[1]C2N, FRANCE, and [2]GeePs, FRANCE |
| 11:10 – 11:30 | |
| **W2A-02**<br>**EFFICIENT WIRELESS DATA TRANSFER STRATEGIES FOR ENERGY-AUTONOMOUS ENVIRONMENTAL SENSOR PROBES**<br>Yaswanthkumar Sirumugai Karunakaran, Uttunga Shinde, Peter Woias, and Suman Kundu<br>University of Freiburg, GERMANY | **W2B-02**<br>**ENHANCED ENERGY CONVERSION EFFICIENCY THROUGH COUPLING OF POTENTIALS IN NON-LINEAR VIBRATIONAL ENERGY HARVESTERS: IDENTIFICATION VIA ROOT-TRACKING TECHNIQUE AND ENERGY EYE-DIAGRAMS**<br>Karan Roy[1,2], Andreas Amann[2], and Saibal Roy[1,2]<br>[1]Tyndall National Institute, IRELAND and<br>[2]University College Cork, IRELAND |
| 11:30 - 11:50 | |
| **W2A-03**<br>**VALIDATED MODEL FOR MAGNETOELECTRIC WIRELESS POWER TRANSMIT ANTENNA**<br>Somayeh Motaee and Shad Roundy<br>University of Utah, USA | **W2B-03**<br>**A PHYSICS-BASED TEMPERATURE-DEPENDENT ANALYTICAL MODEL FOR NON-LINEAR CAPACITANCES OF ALGAN/GAN HEMTS**<br>Soraya P. Moncada[1], Fernando Valdez[1], Francisco Hernandez[1], Mihai Negoita[2], Brian D. Rummel[2], Leonid A. Miroshnik[2], Lee A. Gill[2], Robert J. Kaplar[2], Yann E. Bouvier[3], Daniel Diaz[4], Miroslav Vasic[5], and Dejana Cucak[1]<br>[1]University of Texas, El Paso, USA,<br>[2]Sandia National Laboratories, USA,<br>[3]Universidad Rey Juan Carlos, SPAIN,<br>[4]Otis Elevator Co., SPAIN,<br>[5]Universidad Politecnica de Madrid, SPAIN, and<br>[6]Sandia National Laboratories, USA |

**11:50** **Lunch**

**12:50** **W1I - Invited Speaker**
**Session Chair:** Nathan Jackson, University of New Mexico, USA

**W1I-01** **MEMS AT SANDIA NATIONAL LABORATORIES**
Paul Resnick
Sandia National Laboratories, USA

| Session W3A: Kinetic Energy Harvesting<br>**Session Chair:** Shad Roundy, University of Utah, USA | Session W3B: Focus Session: Additive Manufacturing for Microsystems 3<br>**Session Chair:** Peter Woias, University of Freiburg, GERMANY |
|---|---|
| **Ballroom B** | **Ballroom A** |
| 13:50 – 14:10 | |
| **W3A-01**<br>**INVERTED DESIGN OF VIBRATIONAL ENERGY HARVESTER WITH A PRINTED CIRCUIT BOARD USED AS AN ADDITIVE MASS**<br>Shuntaro Miyazato[1], Hiroaki Honma[1,2], Hiroshi Toshiyoshi[2], Akio Uesugi[1], Koji Sugano[1], and Yoshitada Isono[1]<br>[1]Kobe University, JAPAN and<br>[2]University of Tokyo, JAPAN | **W3B-01**<br>**ENHANCED 3D PRINTED MICROFLUIDIC THERMAL MANAGEMENT PACKAGES THROUGH, TWO-PHOTON POLYMERIZATION, FLOW OPTIMIZATION AND MULTIMATERIAL PROCESSING**<br>Angel Yglecias, Miguel A. Palacios Mora, Ever J. Dominguez, and Robert C. Roberts<br>University of Texas, El Paso, USA |
| 14:10 – 14:30 | |
| **W3A-02**<br>**EXPERIMENTAL EVALUATION OF CANTILEVER-UPWARD AND CANTILEVER-DOWNWARD BROADBAND ROTATIONAL ENERGY HARVESTERS UNDER DIVERSE NOISE ENVIRONMENTS**<br>Md Shamim Ahmed[1], Mark Longden[2], Xianghong Ma[1], and Yu Jia[1]<br>[1]Aston University, UK and [2]RL Automotive Ltd, UK | **W3B-02**<br>**ACTUATION USING 3D-PRINTABLE NEAR-INFRARED-RESPONSIVE COMPOSITES – A MINIATURIZED BODY FOR A CATERPILLAR ROBOT**<br>Alicja Musiał[1], Katarzyna Wilczewska[1], Karolina U. Laszczyk[1], Weronika Chuda[1], Tymon Janisz[1], Damian Nowak[1], Piotr Kamedulski[2], and Rafał Walczak[1]<br>[1]Wroclaw University of Science and Technology, POLAND and<br>[2]Nicolaus Copernicus University, POLAND |
| 14:30 - 14:50 | |
| **W3A-03**<br>**REVERSIBLE LIQUID FILLING PROOF MASS FOR TUNING RESONANT FREQUENCY OF KINETIC ENERGY HARVESTER**<br>Rahul Adhikari and Nathan Jackson<br>University of New Mexico, USA | **W3B-03**<br>**LASER-FABRICATED STRETCHABLE INDUCTIVE COILS FOR WEARABLE THERMAL THERAPY**<br>Minhazur Rahman, Sharmin Jahan, and Nathan Lazarus<br>University of Delaware, USA |

**14:50** **Refreshment Break**
**Ballroom B Foyer**

**15:20** **Session W4A: Power for Sensing**

**Session Chair:** Steve Beeby, University of Southampton, UK

15:20 - 15:40

**W4A-01** **BUCKLING-BASED SELF-POWERED SENSOR FOR ABNORMAL TEMPERATURE MONITORING**

Kaisei Matsushita, Hiroaki Honma, Akio Uesugi, Koji Sugano, and Yoshitada Isono
Kobe University, JAPAN

15:40 - 16:00

**W4A-02** **MEMS ELECTRET-BASED ACOUSTIC HARVESTER WITH HELMHOLTZ RESONATOR FOR EVENT-DRIVEN IOT SENSING**

Hiroyuki Mitsuya[1], Hisayuki Ashizawa[1], Takuma Ishiguro[1], Masahiro Morita[1], Gen Hashiguchi[2], and Hiroshi Toshiyoshi[3]
[1]Saginomiya Seisakusho, INC., JAPAN, [2]Shizuoka University, JAPAN, and [3]University of Tokyo, JAPAN

16:00 - 16:20

**W4A-03** **A COMPARISON OF SINGLE AND DUAL-COIL TRANSMITTERS FOR ELECTRODYNAMIC WIRELESS POWER TRANSMISSION**

Vernon S. Crasto and David P. Arnold
University of Florida, USA

**16:20** **End of Day**

**18:00 - 21:00** **Conference Banquet**

National Museum of Nuclear Science & History

# Thursday, 18 December

All indicated times are Mountain Standard Time (MST).

**08:15** **Conference Announcements and PowerMEMS 2026 Announcement**

**08:20** **Plenary Presentation III**

Session Chair: Chris Roberts, University of Texas, El Paso, USA

**ThPA-01** **RADIATIVE WIRELESS POWER TRANSFER - FROM MW ENERGY HARVESTING TO GW POWER FROM SPACE**
Naoki Shinohara
Kyoto University, JAPAN

**09:20** **Session Th1A - Microfabrication and Materials for Energy 2**

Session Chair: Honma Hiroaki, Kobe University, JAPAN

09:20 - 09:40

**Th1A-01** **EFFECT OF CROSS-LINKING AGENT ON STRETCHABLE ELASTOMER ELECTRET FOR ENERGY HARVESTING**
Ryuki Horibe, Rui Wang, Yuhan Gu, Kuniko Suzuki, Tomoya Miyoshi, and Yuji Suzuki
University of Tokyo, JAPAN

09:40 - 10:00

**Th1A-02** **WIRELESS ACOUSTIC COMMUNICATION POWER REDUCTION THROUGH ACTIVE SENSOR OPERATION OPTIMIZATION**
Kimhabin Yoon, Steven Tran, Seungbeom Noh, and Hanseup Kim
University of Utah, USA

10:00 - 10:20

**Th1A-03** **SURFACE POTENTIAL CONTROL OF SELF-ASSEMBLED ELECTRETS USING CORONA DISCHARGE POST-PROCESSING**
Minori Morihata[1], Mitsuto Kojima[1], Hiroki Naruo[1], Yuya Tanaka[2], and Daisuke Yamane[1]
[1]Ritsumeikan University, JAPAN and [2]Gunma University, JAPAN

10:20 - 10:40

**Th1A-04** **ELECTROCHEMICAL PLATED ZINC METAL FOR YARN ZINC ION SUPERCAPACITOR**
Sheng Yong, Jidong Liu, and Stephen Beeby
University of Southampton, UK

**10:40** **Refreshment Break**

**Ballroom B Foyer**

**11:10** **Session Th2A - Advances in Energy Harvesting**

Session Chair: Shad Roundy, University of Utah, USA

11:10 - 11:30

**Th2A-01** **DEVELOPMENT OF THIN FILM PIEZOELECTRIC ALUMINUM NITRIDE ON STAINLESS STEEL SUBSTRATES**

Firdos Ali[1], Nader Rady[1], Mehadi Hassan[1], Robert Andosca[2], and Nathan Jackson[1]
[1]University of New Mexico, USA and [2]Inviza Health, USA

11:30 - 11:50

**Th2A-02** **EXPLOITING BURSTING DYNAMICS FOR ENHANCED ENERGY HARVESTING AND VIBRATION CONTROL**

Michele Rosso and Raffaele Ardito
Politecnico di Milano, ITALY

11:50 - 12:10

**Th2A-03** **BISTABLE MECHANISM FOR DIODE-LESS RECTIFICATION IN ENERGY HARVESTING: DESIGN, EXPERIMENTS, AND PRACTICAL LIMITATIONS**

Raffaele Ardito and Michele Rosso
Politecnico di Milano, ITALY

**12:10** **Award Ceremony and Closing Remarks**

**Ballroom B**

**12:30** **Conference Adjourns**