

Programme

Workshop in Devices, Materials and Structures for Energy Harvesting

Tuesday 16 February 2016

10.00 Registration and Coffee

10.30 Welcome

Session 1: Applications (Chair: Zdenek Hadas)

10.45 1A **Technologies for SMART Cities**
Erik Odvarka, Brno University of Technology/NETME (Czech Republic)

11.10 1B **Aerospace Advanced Technology**
Patrik Moravek, Honeywell (Czech Republic)

11.35 1C **Energy Harvesting for Biomedical Applications**
Jan Smilek, Brno University of Technology (Czech Republic)

12.00 **Poster Introduction Session (2 min each)**

12.30 **LUNCH AND POSTERS**

Session 2: Materials (Chair: Hana Hughes)

13.30 2A **Semiconductor Piezoelectric Nanowires for Energy Transduction Applications**
Gustavo Ardila, Minatec Grenoble (France)

13.55 2B **Study of Lead-Free BaZr_{1-y}Ti_{1-y}O₃ Piezoceramics for Potential Use in Energy Harvesting Applications**
Chang Shu, University of Birmingham (United Kingdom)

14.20 2C **Investigation of Preparing KNN by Different Sintering Methods**
Bo Nan, Brno University of Technology/CEITEC (Czech Republic)

14.45 2D **Several Ways to Obtain Piezoelectric Materials with High Properties**
Ma Weibing, Tinjin University (China)

15.10 2E **Materials for Electrocalorific Applications**
Tim Button, University of Birmingham (United Kingdom)

15.35 **COFFEE AND POSTERS**

Session 3: Systems and Devices 1 (Chair: Yang Bai)

- 16.00 3A **Experimental Sea Wave Energy Extractor Based on Piezoelectric Ericsson cycles**
Benjamin Ducharne, *INSA Lyon (France)*
- 16.25 3B **Efficiency of Vibration Energy Harvesting System**
Zdenek Hadas, *Brno University of Technology/NETME (Czech Republic)*
- 16.50 3C **Hybrid Micro-power Harvesters for Scavenging AC and DC Sources**
Ali Muhtaroglu, *Middle Eastern Technical University (Cyprus)*
- 17.15 **CLOSE**
- 19.30 **CONFERENCE DINNER**
Stopkova Pivnice, Česká 163/5, 602 00 Brno
www.kolkovna.cz/en/stopkova-plzenska-pivnice-16

Wednesday 17 February 2016

Session 4: Multistable Devices (Chair: Chris Bowen)

- 9.00 4A **Dynamic Properties of Laminated Energy Harvester by Recurrences**
Grzegorz Litak, *Lublin University of Technology (Poland)*
- 9.25 4B **Non-Orthogonal Bistable Laminates for Energy Harvesting**
Peter Harris, *University of Bath (United Kingdom)*
- 9.50 4C **On the Influence of the Discretization of a Bistable Magnetoelastic Energy Harvesting System**
Lukas Lentz, *TU Berlin, Institute of Applied Mechanics (Germany)*
- 10.15 4D **Multistable Structures for Robust Energy Harvesting**
Matthias Heymanns, *TU Darmstadt (Germany)*
- 10.40 **COFFEE AND POSTERS**

Session 5: Systems and Devices 2 (Chair: Tim Button)

- 11.10 5A **Flexible Pyroelectric Harvester Utilizing Pyroelectric Secondary Effect in PVDF-Graphene Composites**
Daniel Zabek, *University of Bath (United Kingdom)*

- 11.35 5B **Balancing the Properties and Processes of Piezoelectric Materials for Energy Harvesting Applications**
Yang Bai, *Brno University of Technology/CEITEC (Czech Republic)*
- 12.00 5C **Polymer/Nanostructured Carbon Composites For Electrostatic Energy Harvesters**
Juris Blums, *Institute of Technical Physics Riga (Latvia)*
- 12.30 **LUNCH AND POSTERS**

Session 6: Modelling and Systems (Chair: Grzegorz Litak)

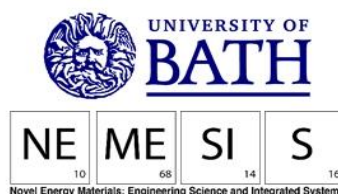
- 13.30 6A **The energy harvesting systems of Macro Fiber composites and a magnetostrictive material modelling**
Marek Borowiec, *Lublin University of Technology (Poland)*
- 13.55 6B **Monolithic Modelling and Simulation of Flow-Driven Piezo-Composite Energy Harvesters**
Andreas Zilian, *University of Luxembourg (Luxembourg)*
- 14.20 6C **System electronics for Energy Harvesting**
Pavel Tofel, *Brno University of Technology/CEITEC (Czech Republic)*
- 14.45 **COFFEE**
- 15.15 **Collaborations, Funding and Proposals**
(Led by Grzegorz Litak)
- 16.30 **CLOSE OF WORKSHOP**

Posters

- P1 FLEHAP - Fluttering Energy Harvester for Autonomous Powering**
Gregorio Boccalero, *Univeristy of Genoa (Italy)*
- P2 The Influence of Nonlinearity on Power Generation in Electromagnetic Energy Harvesting System**
Krzysztof Kucab, *University of Rzeszow (Poland)*
- P3 The Influence of Energy Harvesting Device Parameters on Output Power in the Nonlinear System**
Wioletta Pasko, *University of Rzeszow (Poland)*

- P4 Design and Analysis of a Vibration-Based Magnetolectric Energy Converter**
Slim Naifar, *Technical University of Chemnitz (Germany)*
- P5 Energy Harvesting for Cardiac Pacemaker**
Jarosław Zubricki, *Lublin University of Technology (Poland)*
- P6 Optimization of Magnetolectric-Electrodynamic Vibration Converter using Finite Element Analysis**
Sonia Bradai, *Technical University of Chemnitz (Germany)*
- P7 Electromagnetic Pendulum Harvester with Stoppers**
Bartłomiej Ambrozkiewicz, *Lublin University of Technology (Poland)*
- P8 Dynamics of the Electrically Charged Microbeam Designed for Nonlinear Vibration Energy Harvesting**
Hubert Przywara, *Lublin University of Technology (Poland)*
- P9 Converting of Mechanical to Electrical Energy in the Magnetic Oscillator with Limiters of Vibration Amplitude**
Konrad Chwelatiuk, *Lublin University of Technology (Poland)*
- P10 Summary of NEMISIS Project Activities**
Chris Bowen, *University of Bath (UK)*
- P11 Comparison of Measurement Methods of Piezoelectric Ceramic Parameters**
Jiri Fialka, *Brno University of Technology (Czech Republic)*
- P12 Enhancement in piezoelectric effectiveness of PLZT ceramics in fiber form designed for Energy Harvesters**
Lucjan Kozielski, *University of Silesia, (Poland)*

PARTNERS OF THE WORKSHOP



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