

Innovations in Practice
Room 2 – Energy Harvesting Workshop
Organizers: Grzegorz Litak*, Abdu Abdelkefi, Piotr Wolszczak***
 *Lublin University of Technology, Poland
 **New Mexico State University, USA

202.10.14-15 Lublin, Poland (online on <http://cine.edu.pl/>)

Thursday, October 14th, 2021

Hours in zone CET –Central European Time

10:00-10:05 AM **Opening of the Workshop: Grzegorz Litak, Abdu Abdelkefi, Piotr Wolszczak**

10:10 -11:20 AM	Session Title: Energy harvesting & vibration control in mechanical systems Organizers: Krzysztof Kecik and Marek Borowiec <i>Lublin University of Technology, Poland</i>	k.kecik@pollub.pl m.borowiec@pollub.pl
	Presentation 1: Nonlinear dynamics of a new energy harvesting system with quasi-zero stiffness Authors: Jerzy Margielewicz and Damian Gaska, <i>Silesian University of Technology, Poland</i>	jerzy.margielewicz@polsl.pl damian.gaska@polsl.pl
	Presentation 2: Energy recovery from a system with two pseudo-levitating magnets Authors: Andrzej Mitura and Krzysztof Kecik <i>Lublin University of Technology, Poland</i>	a.mitura@pollub.pl k.kecik@pollub.pl
	Presentation 3: Concept of autonomous wireless monitoring system for railways Authors: Zdeněk Hadaš <i>Brno University of Technology, Czech Republic</i>	hadas@fme.vutbr.cz
	Presentation 4: Energy Harvesting for Hybrid Excitation Author: Bartłomiej Ambrozkiwicz <i>Lublin University of Technology, Poland</i>	b.ambrozkiwicz@pollub.pl

11:30 -11:45 AM Room 1	Invited Lecture , Chair: Grzegorz Litak, Lublin University of Technology, Poland Title: Introduction to vibration energy harvesting Invited Speaker: Daniil Yurchenko <i>Heriot-Watt University, Edinburgh, UK</i>	D.Yurchenko@hw.ac.uk
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11:50 AM- 01:20 PM	Session Title: Advanced materials and technologies in nanogenerators Organizers: Slim Naifar, Sonia Bradai, and Olfa Kanoun <i>University of Technology Chemnitz, Germany</i>	olfa.kanoun@etit.tu-chemnitz.de, slim.naifar@etit.tu-chemnitz.de, sonia.bradai@etit.tu-chemnitz.de
	Title: Advances in nanostructures for high-performance nanogenerators Invited Speaker: Ayda Bouhamed <i>Chemnitz University of Technology, Germany</i>	ayda.bouhamed@etit.tu-chemnitz.de
	Presentation 1: Zinc doped BCZT/PVDF-HFP for improved performance of flexible piezoelectric nanogenerator	benayed.aminalfpc@gmail.com

<p>Authors: Amina Ben Ayed¹, Ayda Bouhamed², Najmeddine Abdelmoula¹, Hamadi Khemakhem¹, and Olfa Kanoun² ¹<i>Faculty of Sciences of Sfax, Tunisia</i> ²<i>Chemnitz University of Technology, Germany</i></p>	
<p>Presentation 2: Lead free nanoceramic for a high output piezoelectric nanogenerator Authors: Khawla Jeder¹, Ayda Bouhamed², Hanen Nouri², Najmeddine Abdelmoula¹, Nathanael Jöhrmann², Bernhard Wunderle², Hamadi Khemakhem¹, and Olfa Kanoun² ¹<i>Faculty of Sciences of Sfax, Tunisia</i> ²<i>Chemnitz University of Technology, Germany</i></p>	khaola.jeder@gmail.com
<p>Presentation 3: Biocompatible piezoelectric energy harvesting Authors: Rajarajan Ramalingame; Sanjeev Vishal Kota and Olfa Kanoun <i>Chemnitz University of Technology, Germany</i></p>	rajarajan.ramalingame@etit.tu-chemnitz.de
<p>Presentation 4: Synchronised switch on inductor energy harvesting circuits for flexible piezoelectric generators Authors: Meriam Ben Ammar^{1,2}, Ahmed Fakhfakh¹, Christian Viehweger², and Olfa Kanoun² ¹<i>National School of Electronics and Telecoms of Sfax, Tunisia</i> ²<i>Chemnitz University of Technology, Germany</i></p>	meriam.ben-ammar@etit.tu-chemnitz.de

01:30 – 3:00 PM	<p>Session Title: Trends, tools and applications of energy harvesting Organizers: Pradeep V Malaji (<i>BLDEAs V P, P G Halakatti CET, Vijayapur, India</i>) and Shaikh Faruque Ali (<i>Indian Institute of Technology-Madras, IIT-M, India</i>)</p>	pradeepmalaji@bldeacet.ac.in sfali@iitm.ac.in
	<p>Title: Energy harvesting by smart and metamaterials: feasibility and application potential Invited Speaker: Bisakh Bhattacharya <i>IIT Kanpur, India</i></p>	bishakh@iitk.ac.in
	<p>Presentation 1: Geometry design and performance optimization of thermoelectric generator Authors: Ravindra S. Kondaguli, and P G Halakatti <i>BLDEAs V P Dr. P G Halakatti CET, Vijayapur, India</i></p>	ravindrakondaguli@gmail.com
	<p>Presentation 2: Enhanced energy using time delay feedback control of bi-stable systems Author: Srimanta Lai De <i>IIT Madras, India</i></p>	am20d003@smail.iitm.ac.in
	<p>Presentation 3: Dynamic analysis of FSI based harvester Author: Rajanya Chatterjee <i>IIT Madras, India</i></p>	rajanya02@gmail.com

3:00 - 3:30 PM	Technical Break	
	<ul style="list-style-type: none"> - Painter artists from Lublin promotion movie - Movies with innovations - Lublin UM movie 	lg27@poczta.onet.pl

3:30 – 5:00 PM	Session Title: Keynote Lectures Chairs: Abdu Abdelkefi and Piotr Wolszczak	abdu@nmsu.edu p.wolszczak@pollub.pl
Title: High-performance nonlinear vibration energy harvesters in rotational motion Keynote Speaker: Shengxi Zhou Northwestern Polytechnical University, China		zhoushengxi@nwpu.edu.cn
Title: Enhanced piezoelectric vibration energy harvesting with inertial amplifiers Keynote Speaker: Sondipon Adhikari Swansea University, UK		s.adhikari@swansea.ac.uk

5:00 – 6:00 PM	Panel discussion for industry and researchers Organizers: Carlo Trigona and Piotr Wolszczak	carlo.trigona@dieei.unict.it p.wolszczak@pollub.pl
- Tomasz Szewczyk, Sitaniec Technology, Poland - Przemysław Kowalski, Cube Tech, Poland - Aravindan Ramalingam, Ubi Techpark, Singapore - Sławomir Bucki z Marelli Sosnowiec Poland Sp. z o.o. Automotive Lighting, Poland		tomasz.szewczyk@sitaniec.pl, przemek@cubetech.eu aravindan@ftdsolutions.com s.bucki@cadowice.pl
6:00 - 6:30 PM	Panel discussion for industry and researchers Organizer: Eva Blaisdell, Lady Rocket Foundation, USA	eva.blaisdell@california.spacecenter.com

Friday, October 15th, 2021

11:00 AM – 12:30 PM	Session Title: Power conversion issues in energy harvesting systems Organizer: Junlei Wang <i>ZhengZhou University, China</i>	jlwang@zzu.edu.cn
Presentation 1: Achieving vibration-to-rotation conversion with a cantilever-driven rotor for efficient energy harvesting Authors: Tan Qingxue and Fan Kangqi <i>Xidian University, China</i>		qinxue.tan@gmail.com
Presentation 2: A fluidic piezoelectric vibration energy harvester used for pneumatic system Author: Zhang Zhonghua <i>Zhejiang Normal University, China</i>		zhangzh@zjnu.cn
Presentation 3: Exploring mode activation and its role in two-degree-of-freedom galloping systems for promoting energy harvesting Authors: Hu Guobiao, Wang Junlei, Tang Lihua, and Yang Yaowen <i>Nanyang Technological University, Singapore</i>		guobiao.hu@ntu.edu.sg
Presentation 4: Flow-induced energy harvesting in composite beams with different lamination angles Author: Fevzi Bolat <i>Bolu Abant İzzet Baysal University, Turkey</i>		fevzicakmakbolat@ibu.edu.tr

12:30 – 2:00 PM	Session Title: Energy harvesting systems application issues Organizers: Grzegorz Litak and Piotr Wolszczak <i>Lublin University of Technology, Poland</i>	
	Presentation 1: SSH in energy harvesting Author: Andrzej Koszewnik <i>Bialystok University of Technology, Poland</i>	a.koszewnik@pb.edu.pl
	Presentation 2: 3D energy harvesting using a piezomagnetic transducer Author: Mariusz Klimek <i>Lublin University of Technology, Poland</i>	m.klimek@pollub.pl
	Presentation 3: Piezoelectric energy harvesting device for electronic gadgets Authors: Lucas Q Machado, D. Yurchenko, and Junlei Wang <i>Heriot-Watt University, UK</i>	lq14@hw.ac.uk
	Presentation 4: Application of selected algorithms of machine learning in determining of distributions of impulses forcing oscillator vibrations Authors: Marek Sulewski and Agnieszka Ozga <i>AGH Kraków, Poland</i>	sulewski@agh.edu.pl aозga@agh.edu.pl

2:15 – 3:45 PM	Session Title: Keynote Lectures Chairs: Abdu Abdelkefi and Grzegorz Litak	abdu@nmsu.edu g.litak@pollub.pl
	Title: Composite design for novel energy harvesting and sensing structures Keynote Speaker: Chris Bowen University of Bath, UK	msscrb@bath.ac.uk
	Title: Blue energy harvesting: from ocean wave to offshore wind Keynote Speaker: Lei Zuo Virginia Tech, USA	leizuo@vt.edu

4:00 – 5:50 PM	Session Title: Advanced topics in energy harvesting systems and materials Organizers: Americo Cunha Jr (Rio de Janeiro State University, Brazil) and José Manoel Balthazar (University of São Paulo, Brazil)	americo.cunha@uerj.br jmbaltha@gmail.com jose-manoel.balthazar@unesp.br
	Presentation 1: Graded elastic metastructures for enhanced piezoelectric energy harvesting Author: Carlos De Marqui Junior University of São Paulo, Brazil	demarqui@sc.usp.br
	Presentation 2: Brief dynamic investigation of asymmetric bistable energy harvester Author: João Pedro Norenberg São Paulo State University, Brazil	jpcvalse@gmail.com
	Presentation 3: Experimental analysis of a piezomagnetoelastic bistable energy harvesting system: preliminary test results Author: Paulo S. Varoto University of São Paulo, Brazil	varoto@sc.usp.br
	Presentation 4: On applying fractional calculus in nonlinear dynamics for energy harvesting Author: Maurício A. Ribeiro Federal University of Technology of Paraná, Brazil	mau.ap.ribeiro@gmail.com
	Presentation 5: Smart mechanical energy harvesting design guided by nonlinear dynamics Author: Marcelo A. Savi Federal University of Rio de Janeiro, Brazil	savi@mecanica.coppe.ufrj.br