

Auxetics 2018

9th International Conference and 14th International Workshop on Auxetics and Related Systems with "Negative" Characteristics

Cantor Building, Sheffield Hallam University, 153 Arundel Street, Sheffield, S1 2NU, UK

Programme (10th to 13th September 2018)

MONDAY 10 TH SEPTEMBER	
14.00-15.00	ARRIVAL, REGISTRATION AND WELCOME LUNCH
15.00-15.15	CONFERENCE WELCOME AND OPENING <i>Professor Wayne Cranton (Assistant Dean Research, Sheffield Hallam University)</i> <i>Professor Andy Alderson (Conference Chairman, Sheffield Hallam University)</i> <i>Professor Krzysztof Wojciechowski (Conference Vice Chairman, Polish Academy of Sciences)</i>
15.15-15.45	A 3D hybrid auxetic lattice/foam for energy dissipation and posture comfort <i>Fabrizio Scarpa et al, University of Bristol, UK</i>
15.45-16.05	Viscoelastic constitutive equations for liquids: Non-equilibrium Molecular Dynamics, Phenomenological models and scale effects <i>David Heyes et al, Imperial College London, UK</i>
16.05-16.25	Data driven on the determination of strain energy functions of hyperelastic auxetic materials <i>José Crespo and F. Montáns, Universidad Politécnica de Madrid, Spain</i>
16.25-17.00	COFFEE BREAK
17.00-17.40	KEYNOTE LECTURE (Transatlantic Web-Link) <i>Extreme, reversed, and nonclassical properties in heterogeneous materials</i> <i>Roderic Lakes, University of Wisconsin-Madison, USA</i>
17.40-18.30	AuxetNet Young Researchers Forum (Poster Session)
18.30	EVENING MEAL in Hallam View

TUESDAY 11 TH SEPTEMBER	
9.00-9.30	Origin of thickness change in needlepunched nonwovens <i>Anselm Griffin et al, Georgia Institute of Technology, USA</i>
9.30-9.50	Effect of binding yarn float length on Poisson's ratio <i>Hassan Iftekhhar et al, National Textile University, Pakistan</i>
9.50-10.10	Auxetic protective equipment <i>Charlotte Moroney et al, Manchester Metropolitan University, UK</i>
10.10-10.30	Cats and knits: a review of auxetic fabrics and new biomimetic fibrous concepts <i>Andy Alderson and K. L. Alderson, Sheffield Hallam University, UK</i>
10.30-11.00	COFFEE BREAK
11.00-11.30	BOGDAN MARUSZEWSKI MEMORIAL LECTURE <i>Krzysztof Wojciechowski, Polish Academy of Sciences, Poland</i>
11.30-11.50	Another look at auxeticity of two-dimensional media <i>Arek Brańka et al, Polish Academy of Sciences, Poland</i>
11.50-12.10	Selective auxeticity enhancement caused by nanochannels' geometry in Yukawa crystals <i>Konstantin V. Tretiakov, Polish Academy of Sciences, Poland</i>
12.10-14.00	LUNCH & AuxetNet Young Researchers Forum (Poster Session)
14.00-14.30	Poisson's ratio sign reversal with stress sign reversal <i>Teik-Cheng Lim, Singapore University of Social Sciences, Singapore</i>
14.30-14.50	INVITED LECTURE: Applied Auxetics? <i>Kim L. Alderson, UK</i>
14.50-15.10	Influence of unit cell size on dynamic properties of periodic cellular auxetic <i>Tomasz Stręk, Poznan University of Technology, Poland</i>
15.10-15.30	Pattern scale factor (PSF) method for generating metamaterials and structures with negative Poisson's ratio <i>Xin Ren and Yi Min Xie, Nanjing Tech University, China</i>
15.30-16.00	COFFEE BREAK
16.00-16.30	Negative Poisson's ratio foam under the effects of phase-transforming negative stiffness <i>Yun-Che Wang and Hsiang-Wei Lai, National Cheng Kung University, Taiwan</i>
16.30-16.50	Emergence of negative stiffness in particulate materials under compression <i>Arcady Dyskin et al, University of Western Australia, Australia</i>
16.50-17.10	A study of manufacture and characterization of auxetic yarns and fabrics <i>Yajie Gao et al, The University of Manchester, UK</i>
17.10-17.30	A theoretical study of structuring effects on the tensile properties of helical auxetic yarns <i>Sai Liu et al, Donghua University, China</i>
17.30-18.30	AuxetNet Young Researchers Forum (Poster Session)
18.30	EVENING MEAL in Hallam View

WEDNESDAY 12TH SEPTEMBER

9.00-9.30	Piezoelectric properties in composite energy harvesters with ZPR and NPR behaviour <i>Fabrizio Scarpa et al, University of Bristol, UK</i>
9.30-9.50	Design of Experiments study of blast loading of auxetic composite panel <i>Nejc Novak et al, University of Maribor, Slovenia</i>
9.50-10.10	Indentation of auxetic and conventional foams <i>Olly Duncan et al, Sheffield Hallam University, UK</i>
10.10-10.30	Plantar pressure distribution through auxetic and conventional foam sheets <i>Joel Godfrey Mithra et al, Loyola ICAM College of Engineering and Technology, India</i>
10.30-11.00	COFFEE BREAK
11.00-11.30	From folding sheets to rotating blocks: negative behaviour at various scales <i>Joseph N. Grima et al, University of Malta, Malta</i>
11.30-11.50	A bio-inspired novel active elastic component based on negative Poisson's ratio structure and dielectric elastomer <i>Yuanlong Wang et al, Nanjing University of Aeronautics and Astronautics, China</i>
11.50-12.10	Emerging localisation patterns in materials with negative Cosserat shear moduli <i>Elena Pasternak and A. V. Dyskin, University of Western Australia, Australia</i>
12.10-12.30	An analysis of auxetic composites under complex loading <i>Hubert Jopek, Poznan University of Technology, Poland</i>
12.30-13.30	LUNCH
13.30-14.15	Round Table discussion
14.30-18.00	Cultural Excursions
19.30	GALA DINNER - Cutlers' Hall

THURSDAY 13TH SEPTEMBER

9.00-9.40	KEYNOTE LECTURE: Dynamic elastic metamaterials <i>Richard Craster, Imperial College London, UK</i>
9.40-10.00	Electronic structure and bending potentials of Metal-Organic Frameworks <i>Valera Veryazov and M. Goullieux, Lund University, Sweden</i>
10.00-10.20	Can we design auxetic molecules? <i>Armand Soldera and E. Cuierrier, Université de Sherbrooke, Canada</i>
10.20-10.40	Coincident molecular auxeticity and negative liquid crystal order parameter in a deformed liquid crystal elastomer <i>Devesh Mistry et al, University of Leeds, UK</i>
10.40-11.10	COFFEE BREAK
11.10-11.40	INVITED LECTURE: Translating materials to biomaterials, a cell biologist's perspective <i>Christine Le Maitre, Sheffield Hallam University, UK</i>
11.40-12.00	Composite auxetic scaffolds show potential for use in tissue engineering <i>Paul Mardling et al, Sheffield Hallam University, UK</i>
12.00-12.20	Auxetic materials for biomedical applications <i>Mohammad Sanami, University of Bolton, UK</i>
12.20-14.00	LUNCH
14.00-14.30	Analytic and computer simulation studies of simple models exhibiting negative Poisson's ratio <i>Krzysztof Wojciechowski, Polish Academy of Sciences, Poland</i>
14.30-14.50	The structural, physical and auxetic properties of two-dimensional hard cyclic hexamers <i>Mikolaj Bilski et al, Poznan University of Technology, Poland</i>
14.50-15.10	Elastic properties of the f.c.c. hard sphere crystals with [001]-nanocylindrical inclusions formed by hard spheres of another diameter <i>Jakub W. Narojczyk and K. W. Wojciechowski, Polish Academy of Sciences, Poland</i>
15.10-15.30	Analytical modelling of the Poisson's ratio of crystalline cellulose I β <i>Shruti Mandhani et al, Sheffield Hallam University, UK</i>
15.30-16.00	COFFEE BREAK
16.00-16.30	Developing 'beyond-Cauchy' materials <i>Andy Alderson and M. Sanami, Sheffield Hallam University, UK</i>
16.30-16.50	Influencing the quasi-static compression response of an auxetic metamaterial via geometric parameterisation <i>Benjamin Hanna et al, Cardiff University, UK</i>
16.50-17.10	Validation of a finite element modelling process for auxetic structures in sports applications <i>Todd Shepherd et al, Manchester Metropolitan University, UK</i>
17.10-17.30	Using auxetic foams to mitigate rotational acceleration in helmets <i>Leon Foster et al, Sheffield Hallam University, UK</i>
17.30-17.45	AuxetNet YOUNG RESEARCHERS PRIZE GIVING & CONFERENCE CLOSE <i>Professor Roger Ecclestone (Pro-Vice Chancellor Research and Global Engagement, Sheffield Hallam University)</i> <i>Professor Kim Alderson (AuxetNet Young Researchers Forum Coordinator)</i> <i>Professor Andy Alderson (Conference Chairman, Sheffield Hallam University)</i> <i>Professor Krzysztof Wojciechowski (Conference Vice Chairman, Polish Academy of Sciences)</i>
18.30	EVENING MEAL - Hallam Central