

Auxetics 2024 Programme

Monday, June 17th

Lunch 13:00 – 14:00

Discussions 14:00 – 15:00

Session I Chairman: **K. W. Wojciechowski**

15:00 – 15:10

Opening

15:10 – 16:10 Anselm C. Griffin

Macromolecular Approaches to Auxetic Materials (remote lecture)

16:10 – 16:40 Joseph N. Grima

Auxetics and Their Properties

Coffee break 16:40 – 17:00

Session II Chairman: **F. Scarpa**

17:00 – 17:30 Nejc Novak

Axisymmetric chiral auxetic structure

17:30 – 18:00 Mirosław R. Dudek

Thin auxetic films with magnetic nanoparticles for shielding electromagnetic radiation

18:00 – 18:30 Andrzej Drzewiński

The Concept of Using 2D Self-Assembly of Magnetic Nanoparticles for Bioassays

18:30 – 18:50 Khanish Gupta

A novel double arrowhead auxetic coronary stent

Get together party 19:15

Tuesday, June 18th

Session I

Chairman: **J. N. Grima**

9:00 – 10:00 Martin Wegener

Anomalous frozen evanescent phonons

10:00 – 10:40 Piotr Surówka

New Developments in Odd Viscoelasticity and Chiral Active Matter

Coffee break 10:40 – 11:00

Session II

Chairman: **Y.-C. Wang**

11:00 – 11:30 Enrico Dalcanale

The supramolecular route to 3D auxetic materials

11:30 – 12:00 Oliver Duncan

Fast optimisation of honeycombs for impact protection

12:00 – 12:30 Teik-Cheng Lim

Some remarks on two-dimensional mechanical metamaterials consisting of rotating rigid units of different shapes

12:30 – 12:50 Simon Preston

Exploring Dynamic Variability in Poisson's Ratio: Modelling Damping of Auxetic Viscoelastic Materials

Lunch 13:00 – 14:00

Discussions 14:00 – 15:00

Session III

Chairman: A. Alderson

15:00 – 15:40 Konstantin V. Tretiakov

Models of auxetics at the atomic and molecular level

15:40 – 16:10 Ruben Gatt

Auxetic Mechanical Metamaterials: Towards the consumer marketplace

16:10 – 16:40 Jakub W. Narojczyk

Auxeticity in the face centered cubic crystals of hard spheres with inclusions

Coffee break 16:40 – 17:00

Session IV

Chairman: R. Gatt

17:00 – 18:00 Roderic S. Lakes

Lattices and composites with unusual physical properties (remote lecture)

18:00 – 18:30 Luke Mizzi

Clockwise and Anti-Clockwise Chiral Metamaterials based on Axially Asymmetric 2D Euclidean Tessellations

18:30 – 18:50 Grace Anne Muscat

Advancement in Molecular Modelling of Covalent Organic Frameworks and their Auxetic Potential

Round Table Discussion 18:50 – 19:05

Dinner 19:15

Wednesday, June 19th

Session I

Chairman: M. Wegener

9:00 – 9:40 Andrew Alderson

Models for the prediction of temperature- and pressure-dependent Poisson's ratios in the α -cristobalite and α -quartz tetrahedral frameworks

9:40 – 10:10 Yun-Che Wang

Effective elastic properties of three-dimensional auxetic unit cells with periodic boundary conditions

10:10 – 10:40 Tomasz Stręk

Thermal stresses in periodic cellular auxetic structures with rotating units

Coffee break 10:40 – 11:00

Session II

Chairman: A. Airoidi

11:00 – 11:40 Krzysztof Dudek

Active control over static and dynamic properties of magneto-mechanical metamaterials

11:40 – 12:00 Maciej Zawistowski

Optimization of auxetic geometries in multiphase materials with increased stiffness and near-zero lateral strain

12:00 – 12:20 Keda Li

A novel 3D hybrid auxetic lattice structure with enhanced load bearing capacity

12:20 – 12:40 Zhenyu Li

Static and Dynamic Mechanical Properties of 3D Gradient Petal-like Structures Prepared by Continuous CFRP Composites (remote lecture)

Lunch 13:00 – 14:00

Discussions 14:00 – 15:00

Session III

Chairman: **A. V. Dyskin**

15:00 – 15:40 Angus P. Wilkinson

Preparation and properties of helium containing hybrid fluoroperovskites, and how the helium modifies their negative thermal expansion (remote lecture)

15:40 – 16:10 Elena Pasternak

Smooth bimaterial structures realising negative thermal expansion

16:10 – 16:40 David M. Heyes

Excess Entropy of Fluids: Isomorphs and Isodynes

Coffee break 16:40 – 17:00

Session IV

Chairman: **E. Pasternak**

17:00 – 17:30 Arcady V. Dyskin

Negative stiffness produced by lateral constraint

17:30 – 18:00 Hubert Jopek

An analysis of mechanical properties of selected composites with auxetic phase

18:00 – 18:30 Mariafederica Parisi

Enhanced Hybrid Materials: One-Pot Fabrication of Shear-Thickening Gel-Impregnated Auxetic Polyurethane Foam

Poster Session 18:30 – 19:15

Committee: **M. Dudek, L. Mizzi, T.-C. Lim**

Bonfire at 19:15

Thursday, June 20th

Session I

Chairman: T. Stręk

9:00 – 10:00 Fabrizio Scarpa

Emerging auxeticity in porous and wood composite materials under relative humidity conditions

10:00 – 10:30 Pierre-Sandre Farrugia

Auxetic behaviour from semi-rigid rotating units

Coffee break 10:30 – 10:50

Session II

Chairman: K. V. Tretiakov

10:50 – 11:20 Alessandro Airoidi

Foam-filled auxetic absorbers: working mechanisms and preliminary studies

11:20 – 11:40 Sebastiano Di Mauro

Foam-filled auxetic absorbers: materials and applications

11:40 – 12:05 Antonio Maria Caporale

A 3D BCC chiral auxetic structure

12:05 – 12:25 Maria Cardona

Towards the Synthesis of Auxetic Molecular Networks; Preparation of Precursors

Lunch 12:30 – 13:30

Excursion to Poznań 13:40 – 19:00

Banquet at 19:15

Friday, June 21st Sept.

Session I

Chairman: J. Smardzewski

9:00 – 10:00 Diego Misseroni

Unveiling Complex Mechanics of Kresling Origami

10:00 – 10:40 Piotr Zieliński

Self-similarity of ferroelastic textures and acoustic signals. A way to auxeticity?

Coffee break 10:40 – 11:00

Session II

Chairman: D. M. Heyes

11:00 – 11:30 Jerzy Smardzewski

Sandwich panels made of veneer with a “negative” honeycomb core

11:30 – 12:00 Sławomir Pieprzyk

Negative viscosity component of the hard-sphere crystal

12:00 – 12:20 Welteji Bena Iticha

Performance improvement of heat exchangers utilizing gyroid TPMS structure

12:20 – 12:50 Krzysztof W. Wojciechowski

Modeling of auxetics using systems interacting via hard potential

12:50 Closing

Lunch 13:00 – 14:00

	Monday 17.6.2024	Tuesday 18.6.2024	Wednesday 19.6.2024	Thursday 20.6.2024	Friday 21.6.2024
8:00 —	Breakfast				
9:00 —	Registration	M. Wegener	A. Alderson	F. Scarpa	D. Misseroni
10:00 —		P. Surówka	Y.-C. Wang	P.-S. Farrugia	P. Zieliński
			T. Stręk		
11:00 —		Coffee break	Coffee break	Coffee break	Coffee break
		E. Dalcanale	K. K. Dudek	A. Airoidi	J. Smardzewski
		O. Duncan	M. Zawistowski	S. Di Mauro	S. Pieprzyk
12:00 —		T.-C. Lim	K. Li	A. M. Caporale	W. B. Iticha
		S. Preston	Z. Li	M. Cardona	K.W. Wojciechowski
13:00 —				Lunch	Closing
	Lunch				Lunch
14:00 —	Discussions				
15:00 —	Opening	K. V. Tretiakov	A. P. Wilkinson	Excursion to Poznań	
	A. C. Griffin		R. Gatt		E. Pasternak
16:00 —	J. N. Grima	J. W. Narojczyk	D. Heyes		
	Coffee break	Coffee break	Coffee break		
17:00 —	N. Novak	R. S. Lakes	A. V. Dyskin		
	M. R. Dudek		H. Jopek		
18:00 —	A. Drzewiński	L. Mizzi	M. Parisi		
	K. Gupta	G. A. Muscat	Poster Session		
19:00 —		Round Table			
20:00 —	Welcome Party	Dinner	Bonfire	Banquet	