#### Sunday, July 20 4:00-6:00 Registration at the Guest House

#### Monday July 21

#### **Registration at WEB Lower level starts at 8:00**

8:30 -8:45	WEB L104 Opening
	WEB L104 Chair: Dominique Jeulin
8:45 - 9:30	Andrew Norris (plenary lecture) Static and dynamic elastic homogenization of periodic structures
9:30-10:15	Martin Wegener (plenary lecture) Experiments on Elastic and Thermodynamic Cloaking

#### **Coffee Break**

Time	WEB L104 Chair: Alex Figotin	WEB L102 Chair: Rod Lakes
10:45 - 11:15	<b>Valy Vardeny</b> Advances in Organic Random Lasers	Massimo Ruzzene Wave Propagation in Multistable Magneto-Elastic Lattices
11:15 - 11:45	<b>Andrea Alu</b> Parity-time symmetric metasurfaces and metamaterials	<b>Michele Brun</b> Transformation cloaking for flexural waves in elastic plates
11:45- 12:15	<b>Braxton Osting</b> Concentrated density of states and the triangular lattice	<b>Yury Grabovsky</b> A complete list of exact relations for effective elastic tensors of fiber- reinforced composites

#### Lunch

Time	WEB L104 Chair: Mikhail Raikh
1:50 - 2:35	<b>Anna Vainchtein (plenary lecture)</b> The discrete charm of nonlinearity: solitary waves in non-integrable lattices

#### **Coffee break**

Time	WEB L104 Chair: Andrew Norris	WEB L102 Chair: Lev Truskinovsky
3:05 - 3:35 -	<b>Robert V. Kohn</b> Optimal design revisited: The leading order effect of perimeter regularization	
3:40 - 4:10	<b>Viktor Berdichevsky</b> Homogenization of random structures in probabilistic terms	<b>Rebecca Brannon</b> Initialization of Discrete Statistical Crack Properties in Continuum-Scale Domains
4:10 - 4:40	<b>Konstantin Lurie</b> On material optimization in continuum dynamics	<b>Shankar Prasad Das</b> Qualitatively different collective and single particle dynamics in a supercooled liquid
Time	WEB L104 Chair: Graeme Milton	
4:50 - 5:40	Kenneth Golden (public lecture) Modeling the Melt: what math tells us about the disappearing polar ice caps	

#### 6:00 - 8:00 Reception in the Guest House

#### **Tuesday July 22**

Time	WEB L104 Chair: Martin Wegener	
8:30-9:15	<b>Rod Lakes (plenary lecture)</b> Extreme elastic, viscoelastic and piezoelectric properties in structured materials.	
9:15-10:00	<b>Katayun Barmak</b> (plenary lecture) Grain Growth and Grain Growth Stagnation in Metallic Films	

#### **Coffee Break**

Time	WEB L104 Chair: Hisao Hayakawa	WEB L102 Chair: Valy Vardeny
10:25-10:55	<b>Lev Truskinovsky</b> Passive mechanical behavior of skeletal muscles	
11:00-11:30	Alexander Mamonov Krein-Gelfand- Levitan algorithm for inverse hyperbolic problems via spectrally matched finite- difference grids	<b>Slava Krylov</b> Dynamics of Arrays of Parametrically Excited Electrostatically Coupled Micro Oscillators
11:30-12:00	Andrejs Treibergs On the Realizability of Electric Fields in Conducting Materials	Ken Karmin Nonlocal continuum modeling of dry granular flow
12:00-12:30	<b>Grzegorz Dzierzanowski</b> Optimal structures made of two elastic materials and void	<b>Yekaterina Epshteyn</b> A Theory and Challenges for Coarsening in Microstructure

#### Lunch

Time	WEB L104 Chair: Liliana Borcea	
1:50-2:35	Tuomas Tallinen (plenary lecture) Hyperelastic modeling of morphogenesis	
2:35-3:05	Ross McPhedran A Platonic View of Active Cloaking	

#### **Coffee break**

Time	WEB L104 Chair: Viktor Berdichevsky	WEB L102 Chair: Rebecca Brannon
3:40-4:10	<b>Joe Goddard</b> Continuum modeling of granular media	<b>Liping Liu</b> Attainability of Hashin-Shtrikman's bounds for multiphase composites
4:10-4:40	<b>Elena Cherkaev</b> Spectral representation in forward and inverse homogenization problems for composite materials	<b>Ali Rana Atilgan</b> Modeling Properties of Materials with Nanostructure
4:40-5:10	<b>Mikyoung Lim</b> Asymptotics of the solution to the conductivity equation in the presence of adjacent circular inclusionss	<b>Nathan Albin</b> Modulus of Path Families: Continuous and Discrete

## **6:00 - 10:00** Trip to Antelope Island on Great Salt Lake. Bus leaves the WEB parking lot at 5:30, stops at the Guest House, and then leaves at 6:00.

#### Wednesday July 23

Time	WEB L104 Chair: Robert Kohn
8:30-9:15	Hisao Hayakawa (plenary lecture) Theory on rheology of dense granular flow
9:15-9:45	David J. Bergman Exact analysis of a Veselago lens in the quasi-static regime

#### **Coffee Break**

Time	WEB L104 Chair: Blaise Bourden	WEB L102 Chair: Gengkai Hu
10:15 - 10:45	<b>Gal Shmuel</b> Wavelet Analysis of Microscale Strains	<b>Graeme W. Milton</b> Complete characterization of the macroscopic deformations of periodic unimode metamaterials of rigid bars and pivots.
10:45- 11:15	<b>Hoai-Minh Nguen</b> Cloaking and Superlensing using complementary media	Alexander Chudnovsky Scale effect in brittle fracture

#### 11:30-12:30 Lunch

#### 12:40-2:10 Visit to Rio Tinto Natural History Museum or Visit to Red Butte Botanic Garden

# Bus leaves the WEB parking lot at 12:40 and returns to the Guest House at 2:10.

#### 2:30-10:00 Trip to Little Cottonwood Canyon:

3:10- 5:00 Visit the Snowbird Ski Resort, Aerial Tram Rides 5:00-9:00 Alta Lodge: 5:00-6:00 Social, drinks 6:00-8:30 Conference Dinner

Bus leaves the Guesthouse at 2:40 and return at 10:00.

## Thursday July 24 (Pioneer Day - Utah State holiday)

Time	WEB L104 Chair: Ross McPhedran	
8:30 - 9:15	Liliana Borcea (plenary lecture) Imaging in complex environments	
9:15 - 9:45	<b>Dominique Jeulin</b> On the statistical RVE of some long range random media	

## **Coffee Break**

Time	WEB L104 Chair: Alex Hansen	WEB L102 Chair: Yilong Han
10:15-10:45	Alexander Figotin Multi-transmission- line-beam interactive system	<b>Sebastien Motsch</b> Emergence of macroscopic behavior in complex systems
10:45-11:15	<b>Michal Kordy</b> Forward and inverse multifrequency problem for Maxwell's equations using adaptive model order reduction	<b>Andrew Thaler</b> Bounds on the volume fraction of an inclusion in a body with complex conductivities.
11:15-11:45	<b>Niklas Wellander</b> A priori estimates of solutions to the Maxwell equations	Akio Nakahara Control of desiccation crack patterns using memory effects of paste and Faraday waves
11:45-12:15	<b>Fernando Guevera Vasquez</b> A network based inversion method for the Schrödinger problem	Anna Zemlyanova Curvature- dependent surface tension in modelling of fracture

## Lunch (box lunch is provided)

Time	WEB L104 Chair: David Bergman	
1:50-2:20	Alex Hansen Crack front propagation using the fiber bundle model	
2:20-2:50	Gengkai Hu Elastic metamaterials with chiral microstructure	

## **Coffee break**

Time	WEB L104 Chair: Anna Vainchtein	WEB L102 Chair: Konstantin Lurie
3:20-3:50	<b>Khanh Chau Le</b> Dislocations and formation of microstructures in single crystals	Alexander Panchenko Non-local continuum models of particle systems
3:50-4:20	<b>Daniel Colquitt</b> In-plane Rayleigh-Bloch waves for elastic diffraction gratings	<b>Lee Hyundae</b> Size estimate in complex conductivity using translation method
4:20-4:50	<b>Gregory Rodin</b> On reflected interactions in elastic solids containing inhomogeneities	<b>Xian Chen</b> From compatibility conditions to stress-free microstructure for martensitic transformation
4:50-5:20	<b>Benjamin Murphy</b> Random matrix universality, spectral measures, and composite media	<b>Davit Harutyunyan</b> Examples of extremal quasiconvex quadratic forms that are not polyconvex

## Friday, July 25

Time	WEB L104 Chair: Katayun Barmak	
8:30-9:15	Yilong Han (plenary lecture) Nucleation in solid-solid transitions of colloidal crystals	
9:15-10:00	Blaise Bourdin (plenary lecture) Multiscale Problems in Brittle Fracture	

## **Coffee Break**

Time	WEB L104 Chair: Gregory Rodin	WEB L102 Chair: Tuomas Tallinen
10:30-11:00	<b>Klaus Hackl</b> Modeling of microstructures in a Cosserat continuum using relaxed energies.	Alexander Freidin Chemical affinity tensor in mechanochemistry of deformable solids
11:00-11:30	<b>Fred MacKintosh</b> Elasticity on the edge of stability: soft matter inspired by the cell	ТВА
11:30-12:00	<b>Alexey Stepanov</b> Equilibrium States of Nonlinearly Elastic Annuli and Spherical Shells	Nathan Briggs A Look at the Numerical Results of the Optimal Design of Multiphase Elastic Structures
12:00-12:30	<b>Andrej Cherkaev</b> Optimal multimaterial composites: Bounds and structures.	<b>Mikhail Raikh</b> Spin dynamics of a diffusively moving electron in a random hyperfine field
12.20 12.45	Closing	