

**5th International
Conference on
Material Modeling**

**Rome, Italy
June 14-16, 2017**

Local Organizing Committee:

Francesco dell'Isola, Nicola Rizzi, Albrecht Bertram

Scientific Committee:

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Frederic Barlat, Pohang University of Science and Technology, Korea
Albrecht Bertram, University of Magdeburg, Germany
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Local Scientific Committee :

Francesco dell'Isola (SAPIENZA Università di Roma, Italy, M&MoCS Center, University of L'Aquila)
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Daria Scerrato (M&MoCS Center, University of L'Aquila)
Patrizia Trovalusci (SAPIENZA Università di Roma, Italy)

Schedule

Tuesday, 13 June

18:00 – 19:30 Registration and Check-in

Address: Palazzo Argiletum, via della Madona dei Monti
40, Rione Monti, Roma

Friday, 16 June

19:00 – 21:00 Banquet

Address: Palazzo Argiletum, via della Madona dei Monti
40, Rione Monti, Roma

Wednesday, 14 June Room: Laura Attavanti

Session 1: 9:00–12:30 – Nonlinear Elasticity and Viscoelasticity

Chairs: Joern Ihlemann and Francesco dell'Isola

9:00 – 9:25	<u>S. Gelke</u> and J. Ihlemann, <i>A uniaxial model for the inelastic behaviour of rubber and generalization for finite element application</i>
9:30 – 9:55	<u>S. A. Chester</u> , <i>Electro-mechanical modeling of dielectric viscoelastomers</i>
10:00 – 10:25	<u>M. Lobos</u> , T. Böhlke, <i>Representation of Hashin-Shtrikman bounds in terms of texture coefficients for arbitrarily anisotropic polycrystalline materials</i>
10:30 – 10:55	<u>M. W. Lewis</u> , <i>A simplified Mullins effect model and its application to a mechanical constitutive model for compressible foamed rubber</i>
11:00 – 11:30	Coffee break
11:30 – 11:55	<u>S. Klinge</u> , <i>Micromechanical and multiscale modeling of strain-induced crystallization in polymers</i>
12:00 – 12:25	<u>J. Plagge</u> , <i>Modeling time- and temperature dependent nonlinear response of filled rubbers based on physical principles</i>

Session 2: 12:30–17:00 – Atomistic to Continuum Transitions

Chair: Luca Placidi

12:30 – 12:55	<u>A. Kalteis</u> , <i>Investigation of the mechanical properties of TPU on molecular and micro scale</i>
13:00 – 13:25	<u>I. Zubko</u> , <i>discrete atomistic analysis of damage formation: material density gradient as internal degree of freedom</i>
13:30 – 15:00	Lunch
15:00 – 15:25	<u>R. Renou</u> , <i>Modelling glass behaviour under shock loading conditions with molecular simulations</i>
15:30 – 15:55	<u>M. Poluektov</u> , G. Kreiss, O. Eriksson, <i>Coupling atomistic and continuum modelling of magnetism</i>
16:00 – 16:30	Coffee break
16:30 – 16:55	<u>A. Rida</u> , E. Rouhaud, A. Makke, M. Micoulaut, <i>Grain size dependence of the mechanical properties of nanocrystalline alpha titanium investigated by Molecular Dynamics</i>

Wednesday, 14 June
Room: Giovan Battista Falda

Session 3: 9:00–12:00 – Plasticity, Viscoplasticity and Flow in Porous Media

Chairs: Albrecht Bertram and Frederic Barlat

9:00 – 9:25	J. Boudet, F. Auslender, M. Bornert, Y. Lapusta, <u>Incremental stationary variational estimates for the prediction of the effective and local responses in elasto-(visco)plastic composites with isotropic hardening</u>
9:30 – 9:55	K. Heiduschke, <u>On the multiplicative logarithmic strain space formulation</u>
10:00 – 10:25	M.A. Martinez Page, S. Hartmann, <u>Constitutive modeling of the thermo-mechanical behavior of a zinc die-casting alloy</u>
10:30 – 10:55	S. Lhadi, <u>An affine elastic-viscoplastic self-consistent model to study incompatibility stresses in near beta-Ti alloys</u>
11:00 – 11:30	Coffee break
11:30 – 11:55	A. Ask, <u>Coupling crystal plasticity and phase field approaches through the evolution of crystalline orientation</u>
11:30 – 11:55	A.P.S. Selvadurai, <i>Mechanics of fluid-saturated hyperelastic materials</i>

Wednesday, 14 June

Room: Urbano VIII

Session 8: 9:00–12:30 – Phase and Chemically Transforming Materials

Chairs: Valery Levitas and Alexander B. Freidin

9:00 – 9:25	<u>P. Srinivasan</u> , L. Nicola, A. Simone, Phase transformations in NiTi bicrystals: a molecular dynamics simulation study
9:30 – 9:55	<u>S. Stupkiewicz</u> , K. Tůma, H. Petryk, Rate-independent dissipation in phase-field modelling of martensitic transformations
10:00 – 10:25	<u>U. Muehlich</u> , Reaction-diffusion model for oxidative ageing of bitumen
10:30 – 10:55	<u>M. Degeiter</u> , Role of elasticity in the spatial arrangement of precipitates in single-crystal superalloys
11:00 – 11:30	Coffee break
11:30 – 11:55	<u>B. Appolaire</u> , Role of mechanics on diffusive phase transformations investigated by phase field models
12:00 – 12:25	<u>J.Qu</u> , Two-stage vs. multi-phase lithiation kinetics in silicon

Session 4: 12:30–17:30 – Gradient Materials

Chairs: Samuel Forest and Geralf Hütter

12:30 – 12:55	<u>S. Forest</u> , Regularization operators at finite deformations. Application to strain localization in single crystals
13:00 – 13:25	<u>G. Hütter</u> , Micromorphic homogenization and its application to a model of ductile damage
13:30 – 15:00	Lunch
15:00 – 15:25	<u>G. Rosi</u> , N. Auffray, L. Placidi, On the validity domain of strain gradient models
15:30 – 15:55	<u>J. Sorić</u> , F. Putar, T. Lesičar, Z. Tonković, An approach to damage modeling in heterogeneous materials using strain gradient formulation
16:00 – 16:30	Coffee break
16:30 – 16:55	<u>A. Prahs</u> , T. Böhlke, Constitutive modeling of grain boundaries within gradient plasticity theory
17:00 – 17:25	<u>A. Bertram</u> , J. C. Reiher, Finite third-order elasticity and plasticity

Wednesday, 14 June

Room: Gaspare De Vecchi

Session 11: 9:00–12:30 – Creep, Damage, Fracture, and Fatigue

Chairs: Fionn Dunne and Rolf Mahnken

9:00 – 9:25	Z. Zebang , <i>Investigation of slip transfer across grain boundaries with application to cold dwell facet fatigue</i>
9:30 – 9:55	B.A. Behrens, A. Bouguecha, C. Bonk, H. Schulze, Experimental and finite element analysis concerning the forming and failure behaviour of symmetric hybrid structures consisting of two sheet metal outer layers and a thermoplastic core
10:00 – 10:25	J.A.W. van Dommelen , A. Mannheim, M.G.D. Geers, Multi-scale modelling of structure evolution in tungsten under irradiation and heat loads
10:30 – 10:55	W. David , <i>Crack-grain boundary interactions in zirconium investigated using stored energy methods</i>
11:00 – 11:30	Coffee break
11:30 – 11:55	F. Dunne, Multiscale modelling of temperature-dependent dwell fatigue in titanium alloys
12:00 – 12:25	M.R. Daymond Impact of irradiation and temperature on deformation of a zirconium alloy

Session 5: 12:30–17:30 – Generalised Materials

Chairs: Francesco dell'Isola and Victor Eremeyev

12:30 – 12:55	F. dell'Isola , <i>Pantographic lattices as an example of higher gradient continua: heuristic vs rigorous homogenisation, macroscopic vs microscopic models, experimental and numerical examples of equilibrium and motion</i>
13:00 – 13:25	V. A. Eremeyev , On effective surface elastic moduli for media with surface stresses
13:30 – 15:00	Lunch
15:00 – 15:25	M. Serpilli , Derivation of some interface models with microstructure by means of an asymptotic analysis
15:30 – 15:55	T. G. Zielinski , Material modelling and experimental verification of wave propagation and absorption in periodic structures of pores of single or various sizes
16:00 – 16:30	Coffee break
16:30 – 16:55	M. Ameen , O. Rokos, R. Peerlings, M. Geers, Size effects in periodic materials with low scale separation
17:00 – 17:25	A. Rege , M. Itskov, Meso-scale modeling of polysaccharidic aerogels

Thursday, 15 June

Room: Laura Attavanti

Session 1: 9:00–13:30 – Nonlinear Elasticity and Viscoelasticity

Chairs: Joern Ihlemann and Francesco dell'Isola

9:00 – 9:25	N. H. Kröger, <i>A review on finite thermo-viscoelasticity models applied for adhesive tapes</i>
9:30 – 9:55	R. Landgraf, J. Ihlemann <i>Constitutive modeling and finite element simulation of curing phenomena in polymeric materials</i>
10:00 – 10:25	M. Svanadze, <i>On the theory of elasticity for materials with a triple porosity structure</i>
10:30 – 10:55	Z. P. Wang, L. H. Poh, J. Dirrenberger, Y. Zhu, S. Forest, <i>Designing smoothed petal auxetic structures using isogeometric shape optimization</i>
11:00 – 11:30	Coffee break and Poster session*
11:30 – 11:55	A. Berezovski, <i>Microelasticity as internal variable theory</i>
12:00 – 12:25	T. Kojima, <i>Influence of filler dispersion on mechanical behavior with large scale coarse-grained molecular dynamics simulation</i>
12:30 – 12:55	I. Choucair, E. Rouhaud, B. Panicaud, R. Kerner, <i>A four dimensional formalism encompassing Eulerian and Lagrangean approaches to constitutive models</i>
13:00 – 13:25	I.Yu. Zubko, <i>material spin of two-dimensional medium for rate-type orthotropic finite-strain elasticity</i>
13:30 – 15:00	Lunch

Session 10: 15:00–17:30 – Experimental Identification and Material Characterization

Chairs: Victor Eremeyev and Matti Ristinmaa

15:00 – 15:25	L. Kehler, P. Pinter, T. Böhlke, <i>Homogenization techniques. Effective thermoelastic material properties and experimental investigations of pure and fiber reinforced UPPH</i>
15:30 – 15:55	G. Ganzosch, <i>3D-Measurements on 3D-deformation on pantographic structures</i>
16:00 – 16:30	Coffee break
16:30 – 16:55	T. Reppel, <i>Experimental determination of elastic and inelastic properties of unmanufactured and printed ninjaflex</i>
17:00 – 17:25	J. Engqvist, M. Ristinmaa, M. Wallin, S. Hall, T. Plivelic, <i>Polymer deformation measurements and modelling on multiple scales: X-ray scattering, DIC and in-situ loading</i>

* Location in the Poster room

Thursday, 15 June Room: Urbano VIII

Session 3: 9:00–12:30 – Plasticity, Viscoplasticity and Flow in Porous Media

Chairs: Albrecht Bertram and Frederic Barlat

9:00 – 9:25	H. Chowdhury, Critical stress estimation of al-rich ti-61.8%at.al with superstructures by crystal plasticity modeling of anisotropy
9:30 – 9:55	F. Roters, S. L. Wong, P. Shanthraj, M. Diehl, D. Raabe, Thermo-mechanically coupled simulation of high manganese TRIP/TWIP steel
10:00 – 10:25	P. S. Volegov, Mathematical model of crystal lattices rotations with description of grain boundaries structure and grain fragmentation in severe plastic deformations
10:30 – 10:55	F. Barlat, Simplified representations of multiaxial test results in plasticity
11:00 – 11:30	Coffee break and Poster session*
11:30 – 11:55	R. Kießling, J. Ihlemann Material modelling based on directly connected rheological elements: Application to the components of an intrinsic hybrid composite
12:00 – 12:25	Y. Tadano, S. Takeshi, Deformation twinning modeling considering volume fractions of multiple twinning systems

Session 11: 12:30–17:30 – Creep, Damage, Fracture, and Fatigue

Chairs: Fionn Dunne and Rolf Mahnken

12:30 – 12:55	H. Bargaoui, F. Azzouz, G. Cailletaud, D. Thibault, Thermomechanical behavior modeling of resin bonded foundry sand cores during casting
13:00 – 13:25	C. Martin, Coupling X-ray nanotomography to discrete element simulations to model fracture of porous ceramics
13:30 – 15:00	Lunch
15:00 – 15:25	C. Bo, Microstructurally-sensitive fatigue crack nucleation in Ni-based alloys
15:30 – 15:55	L. Poggenpohl, Damage modelling towards shear cutting of CFRP
16:00 – 16:30	Coffee break and Poster session*
16:30 – 16:55	T. Gentieu, Influence of cohesive zone parameters on the failure of particle reinforced composite materials
17:00 – 17:25	Z. Jianqiang, Self-consistent modeling of the mechanical behavior of an austenitic stainless steel under low cycle fatigue loading

* Location in the Poster room

Thursday, 15 June

Room: Giovan Battista Falda

Session 4: 9:00–12:30 – Gradient Materials

Chairs: Samuel Forest and Geralf Hütter

9:00 – 9:25	R. Mahnken, The concept of generalized stresses with applications to three model scenarios
9:30 – 9:55	A. Madeo, G. Barbagallo, M. V. d'Agostino, A. Aivaliotis, P. Neff, Dispersion and band-gaps in micromorphic media and metamaterials
10:00 – 10:25	M. V. D'Agostino, G. Barbagallo, A. Aivaliotis, P. Neff, A. Madeo, Transparent relaxed micromorphic description of anisotropy in metamaterials
10:30 – 10:55	G. Barbagallo, M. V. D'Agostino, A. Daouadji, S. Belouettar, P. Boisse, A. Madeo, Fibrous composite reinforcements as second gradient materials
11:00 – 11:30	Coffee break and Poster session*
11:30 – 11:55	S. Wulfinghoff, A generalized cohesive zone model and a grain boundary yield criterion for gradient plasticity without application of virtual power arguments
12:00 – 12:25	S. Khakalo, J. Niiranen, Strain gradient elasticity theory for modeling 2D and 3D lattice structures: size-dependent mechanical response

Session 8: 12:30–17:30 – Phase and Chemically Transforming Materials

Chairs: Valery Levitas and Alexander B. Freidin

12:30 – 12:55	M. Budnitski, A phasefield approach to tetragonal-to-monoclinic transitions in MgO partially stabilized zirconia
13:00 – 13:25	A. Freidin, Equilibrium two-phase microstructures against optimal composite
13:30 – 15:00	Lunch
15:00 – 15:25	Y. Grabovsky, Lower bounds on the binodal via jump sets
15:30 – 15:55	C. LExcellent, D. Vigoureux, J-M. Vigoureux, Pressure in a tank associated with water-ice phase transformation
16:00 – 16:30	Coffee break and Poster session*
16:30 – 16:55	V. I. Levitas, Phase field approach to martensitic phase transformations, dislocations, and their interaction
17:00 – 17:25	O.Naimark, Defect induced structural-scaling transitions in materials

* Location in the Poster room

Thursday, 15 June

Room: Gaspare De Vecchi

Session 6: 9:00–13:00 – Dislocation Mechanics

Chairs: Khanh Chau Le and Stephane Berbenni

9:00 – 9:25	K. Chau Le, Formation of grain boundaries during severe plastic deformation
9:30 – 9:55	Y. Xiang, Dislocation climb in discrete dislocation dynamics
10:00 – 10:25	I. Groma, Dislocation patterning in a 2D continuum theory of dislocations
10:30 – 10:55	S. Berbenni, Field dislocation and disclination mechanics for heterogeneous materials: a discrete Fourier transform method
11:00 – 11:30	Coffee break and Poster session*
11:30 – 11:55	T. Zálezák, A numerical simulation of a tensile test of ODS alloys using 3D discrete dislocation dynamics
12:00 – 12:25	P. Neff, Rate-independent gradient plasticity with isotropic hardening and plastic spin
12:30 – 12:55	A.L. Kolesnikova and A.E. Romanov, Defects in 2D and 3D crystals: classification, elastic fields and energies

Session 5: 13:00–17:30– Generalised Materials

Chairs: Francesco dell'Isola and Victor Eremeyev

13:00 – 13:25	L. Placidi, F.dell'Isola, E. Barchiesi, Internal strain energy of a homogenized 1D continuum non-linear model for the description of "pantographic beams"
13:30 – 15:00	Lunch
15:00 – 15:25	E. Barchiesi, L. Placidi, F. dell'Isola, A numerical comparison between the (quasi-)inextensible pantographic beam model and the geometrically nonlinear Euler model
15:30 – 15:55	J.L. Dequiedt, R. Madec, C. Denoual, Slip system interactions in FCC single crystals: system selection and segregation for local and non-local constitutive behavior.
16:00 – 16:30	Coffee break and Poster session*
16:30 – 16:55	M. Cuomo, Continuum model of microstructure induced softening for metamaterials
17:00 – 17:30	M.L. De Bellis, P. Trovalusci, R. Masiani, Modeling of random particle composites via a three-scale discrete-continuous approach

* Location in the Poster room

Friday, 16 June

Room: Gaspare De Vecchi

Session 6: 9:00–13:30 – Dislocation Mechanics

Chairs: Khanh Chau Le and Stephane Berbenni

9:00 – 9:25	G. Jurczak , M. Maździarz, P. Dłużewski, Finite element modelling of threading dislocation effect on GaN/AlN quantum dot
9:30 – 9:55	T. Hochrainer , Anisotropic and non-symmetric continuum dislocation dynamics
10:00 – 10:25	M. Zaiser , Interactions of phase and dislocation microstructure in continuum theories of dislocation systems
10:30 – 10:55	A. Ruffini , Phase-field model coupling dislocations and pores in FCC materials
11:00 – 11:30	Coffee break
11:30 – 11:55	K. Schulz , Discrete-continuum transition: a discussion of the continuum limit
12:00 – 12:25	F. Bormann , R. Peerlings, M. Geers, nanoscale study on dislocation-phase boundary interaction – a Peierls-Nabarro finite element approach
12:30 – 12:55	D. J. Bammann, A. Adetokunbo, Coupling dislocation based incompatibilities with continuum damage
13:00 – 13:25	V. Berdichevsky , Crystal plasticity on a small time scale, slip avalanches, acoustic emission and the stress-strain curve
13:30 – 15:00	Lunch

Session 11: 15:00–17:30 – Creep, Damage, Fracture, and Fatigue

Chairs: Fionn Dunne and Rolf Mahnken

15:00 – 15:25	V. de Rancourt , Numerical investigations of the failure behavior of Ti-6Al-4V homogeneous welded joints
15:30 – 15:55	K. Saliya , B. Panicaud, C. Labergère, Thermodynamics and multi-physical model for application to the effect of corrosive environment on metallic alloys
16:00 – 16:30	Coffee break
16:30– 16:55	F. Pereira , Fatigue lifetime prediction on single hole plates made of a cobalt base superalloy
17:00– 17:25	M. Patel , D. S. Balint, M. R. Wenman, A. P. Sutton, Multiscale modelling of delayed hydride cracking: hydrogen diffusion and hydride precipitation

Friday, 16 June
Room: Laura Attavanti

Session 3: 9:00–16:00 – Plasticity, Viscoplasticity and Flow in Porous Media

Chairs: Albrecht Bertram and Frederic Barlat

9:00 – 9:25	A. Shveykin, Large strain description in multilevel crystal plasticity models
9:30 – 9:55	N. S. Kondratev, P.V. Trusov, E.S. Makarevich, N.D. Nyashina, <i>Dynamic recrystallization in the multilevel crystal plasticity model</i>
10:00 – 10:25	J. Tabin, S. Błazej, Discontinuous plastic flow in NbTi/Cu
10:30 – 10:55	F. Baptiste, F. Barbe, C. Keller, Numerical description and experience-modelling comparisons of bimodal grain size distribution alloys
11:00 – 11:30	Coffee break
11:30 – 11:55	M. Maziere, Finite element simulation of Piobert-Lüders-Hartmann bands in polycrystalline aggregates
12:00 – 12:25	S. Dj. Mesarovic, S. Forest, J. P. Jaric, Size-dependent energy of elastic-plastic crystals
12:30 – 12:55	L. Lacourt, S. Forest, D. Ryckelynck, S. Flouriot, V. de Rancourt, A. Thomas, Reduced order modelling of the effect of pore depth on stress and strain fields in an elastic-plastic substrate
13:00 – 13:25	L. Placidi, E. Barchiesi, A. Misra, <i>A variational approach toward the derivation of Karush-Kuhn-Tucker conditions for a novel 2D strain gradient damage model.</i>
13:30 – 15:00	Lunch
15:00 – 15:25	E. Barchiesi, L. Placidi, A. Misra, <i>Mesh-dependency, stress-strain curves and their regularization for some benchmark problems in the setting of a new 2D strain gradient damage model.</i>
15:30 – 15:55	O. Castelnaud, Multiscale Modelling of the Effective Viscoplastic Behavior of Earth Mantle Constituents

Friday, 16 June

Room: Urbano VIII

Session 4: 9:00–10:30 – Gradient Materials

Chairs: Samuel Forest and Geralf Hütter

9:00 – 9:25	E. Diamantopoulou, An experimental-numerical study of the plastic flow localization based on a generalized micromorphic formulation
9:30 – 9:55	H. Petryk, S. Stupkiewicz, A natural extension of classical crystal plasticity to slip-rate gradients and length-scale effects
10:00 – 10:25	F. dell'Isola, Contact actions in higher gradient continua

Session 8: 10:30–17:30 – Phase and Chemically Transforming Materials

Chairs: Valery Levitas and Alexander B. Freidin

10:30 – 10:55	S. A. Chester, Modeling light activated shape memory polymers
11:00 – 11:30	Coffee break
11:30 – 11:55	K. Aifantis, Capturing the interplay between mechanically induced interface energies and grain boundary type
12:00 – 12:25	L. Brassart, A variational thermodynamic framework for modelling non-equilibrium chemical processes coupled to mechanics
12:30 – 12:55	T. Bartel, A. Menzel, A thermomechanically coupled model for the modelling and simulation of the cyclic behaviour of NiTi shape memory alloy wires
13:00 – 13:25	M. Poluektov, A. B. Freidin, Ł. Figiel, Stress-affected chemical reactions in elasto-viscoplastic solids: application to lithiation of spherical Si particles
13:30 – 15:00	Lunch
15:00 – 15:25	A. Morozov, Sergei Khakalo, Viacheslav Balobanov, Jarkko Niiranen, Aleksandr Freidin and Wolfgang H. Mueller, Modelling chemical reaction front propagation using isogeometric analysis procedure
15:30 – 15:55	M. Muramatsu, A simulation of ferroelastic phase formation in LSCF polycrystal based on phase-field model
16:00 – 16:30	Coffee break
16:30 – 16:55	M. Petersmann, T. Antretter, G. Cailletaud, U. Ehlenbröcker, Modelling the lath martensite formation in steels

Friday, 16 June
Room: Giovan Battista Falda

Session 9: 9:00–11:00 – Biomaterials

Chairs: Francesco dell'Isola and Luca Placidi

9:00 – 9:25	V. Silberschmidt, Modelling cortical bone: effect of micro-morphology
9:30 – 9:55	J. Dirrenberger, Bio-inspired architected hybrid lattice structures
10:00 – 10:25	K. Tesnim, A. Barkaoui, T. Marzouki, M. Chafra, Influence of cross links number on a collagen molecule mechanical behavior
10:30 – 10:55	Z. Trad, <i>The influence of varying frontal correction angle on stress distribution within the knee joint during HTO</i>
11:00 – 11:30	Coffee break

Session 7: 11:30 –13:00 Nanomechanics

Chairs: Istvan Groma and Pavel Dłuzewski

11:30 – 11:55	P. Dłuzewski, Tensor form of Vegard's law for crystals of low symmetry
12:00 – 12:25	P. Sandeep, Mechanical properties of nanostructured porous silica aerogel using molecular dynamics simulation
12:30 – 12:55	C. Gerard, Plastic behavior of FCC metallic nanospheres under uniaxial compression

POSTER SESSION

S. Bucci, R. Glüge, A. Bertram, [Non-convex yield surface and non-associative flow rule for honeycomb structures](#)

R. Velayarce Jorge, [A micro-fatigue study of dislocation structures and dislocation interactions at grain boundaries in small scale samples](#)

T. Feldmann, [Simulation of creep of a single crystal superalloy considering the transport of dislocations](#)

Angela Madeo, Patrizio Neff, Ionel-Dumitrel Ghiba, Marco V. d'Agostino, Gabriele Barbagallo, [Alexios Aivaliotis](#) *Reflection and transmission of elastic waves in non-local band-gap metamaterials*

F. Siska, [Finite element analysis of mechanical properties of metallic architected materials](#)

A. Kolesnikova, [Elastic Models of Axisymmetric Inclusions: Finite Cylinder and Truncated Spheroid](#)