

# Timetable – Oral Presentations

## Monday Morning

ENR2 N120

8:00-8:30am	<b>Opening Ceremony</b>	
8:30-9:00	Plenary	<b>Perfect Acoustic Metasurfaces for Arbitrary Wavefront Transformation</b> <u>Steven A. Cummer</u> , Junfei Li, Chen Shen, Ana Díaz-Rubio, and Sergei A. Tretyakov
<b>Track: Nonlinear PC and AM</b>		
9:05-9:25	Keynote	<b>Metastable Modular Metastructures for the Adaptation of Band Structures and Nonreciprocal Wave Propagation</b> <u>K. W. Wang</u>
9:30-9:50	Keynote	<b>Magneto-Granular Crystals: a perfect test bed for nonlinear and topological wave physics</b> <u>Georgios Theocharis</u> , F. Allein, L. Zheng, V. Tournat, V. Gusev
9:55-10:10	Invited	<b>Nonlinear waves in phononic rotational lattices</b> Vitalyi Gusev, Noé Jiménez, <u>Víctor J. Sánchez-Morcillo</u>
10:15-10:30	Org. Coll.	<b>Solitary waves make a Slinky crawl</b> Bolei Deng, Liyuan Chen, Donglai Wei and <u>Katia Bertoldi</u>
10:30-11:00	<b>Break</b>	
11:00-11:15	Invited	<b>Weakly and Strongly Nonlinear Periodic Materials: Amplitude-Dependent Band Structure, Non-Reciprocity, and Implications for Devices</b> <u>Michael J. Leamy</u>
11:20-11:35	Invited	<b>Nonlinear Waves in Flexible Architected Elastic Chains: Vector Solitons, Amplitude Gaps and Wave Control</b> Bolei Deng, Pai Wang, Qi He, <u>Vincent Tournat</u> , Katia Bertoldi
11:40-11:55	Invited	<b>Focusing and Mode Separation of Elastic Vector Solitons in a 2D Soft Mechanical Metamaterial</b> Bolei Deng, Chengyang Mo, Vincent Tournat, Katia Bertoldi, <u>Jordan R. Raney</u>
12:00-12:15pm	Org. Coll.	<b>Symmetric and Asymmetric Double-Negative Pillared Metamaterials</b> <u>B. Bonello</u> , W. Wang, B. Djafari-Rouhani, Y. Pennec, and J. Zhao
12:20-12:32	Contr.	<b>Spatial Filtering based Acoustic Far-field Subwavelength Imaging and Edge Detection</b> <u>Chu Ma</u> , Nicholas X. Fang
12:32-2:00	<b>Lunch</b>	

## Monday Afternoon

ENR2 N120

2:00-2:30	Plenary	<b>Topological Valley and Weyl Phononic Crystals</b> <u>Zhengyou Liu</u>
		<b>Track: PC Design and Fabrication</b>
2:35-2:55	Keynote	<b>Identifying Different Phononic Band Gap Generation Methods</b> <u>Cetin Yilmaz</u>
3:00-3:20	Keynote	<b>Complex Resolvent Band Structure of Phononic Crystals</b> Ting-Ting Wang, Yan-Feng Wang, Yue-Sheng Wang, <u>Vincent Laude</u>
3:25-3:40	Invited	<b>Recent Progress and Self-Adaptive Manipulation of Nonlinear Acoustic/Elastic Metamaterials</b> <u>Xin Fang</u> , Jihong Wen
3:45-4:00	Invited	<b>Recent Findings and Perspectives in “Zero-Frequency” Phononics</b> <u>Eduard G. Karpov</u> , John T. Klein, Larry A. Danso
4:00-4:30		<b>Break</b>
4:30-5:00	Plenary	<b>New Phases of Matter Observed with Architected Materials: From Higher-Order Topological Insulators to Chiral Landau Levels for Phonons</b> Valerio Peri, Marc Serra-Garcia, Roman Süssstrunk, Tom Larsen, Luis G. Villanueva, Osama R. Bilal, Roni Ilan, <u>Sebastian D. Huber</u>
5:05-5:20	Invited	<b>Exploring Finite Phononic Materials using Linear Systems Theory and Pole-zero Distributions</b> <u>Mostafa Nouh</u>
5:25-5:40	Invited	<b>Tunability of Electrically Controlled Piezoelectric Phononic Crystals</b> <u>A.-C. Hladky-Hennion</u> , C. Croënne, J. Vasseur, B. Dubus
5:45-6:00	Keynote	<b>Three-dimensional acoustic double zero index material</b> Changqing Xu, Guancong Ma, Ze-Guo Chen, Jie Luo, Jinjie Shi, Yun Lai and <u>Ying Wu</u>
6:05-6:35	Plenary	<b>Two Phonon Stories</b> <u>Keith A. Nelson</u>
6:40-6:55	Org. Coll.	<b>Resonant Beam Steering Using an Acoustic Transformational Metascreen</b> <u>Abdelkrim Khelif</u>
7:00-9:00		<b>Student Career Planning Workshop</b>

## Tuesday Morning

ENR2 N120

8:00-8:40am	<b>2019 Bloch Prize Lecture: Andrew Norris</b>	
8:40-9:10	Plenary	<b>Topological Phononics</b> <u>Andrea Alù</u>
<b>Track: AM Design and Fabrication</b>		
9:15-9:35	Keynote	<b>Acoustic and Elastic Metasurfaces for Controllable Wave Manipulation</b> <u>Badreddine Assouar</u> , Yifan Zhu, Liyun Cao, Krupali Donda, Shiwang Fan, Yong Li
9:40-10:00	Keynote	<b>Manipulation of Effective Impedance and Phase Velocity for Sensing and Actuation Enhancement</b> <u>Yoon-Young Kim</u> , Kiyeon Kim
10:05-10:20	Invited	<b>A Spatial Sound Modulator for Sound Field Control</b> <u>Guancong Ma</u>
10:20-10:50	<b>Break</b>	
10:50-11:05	Invited	<b>Realizing Willis metamaterials for elastic waves</b> Yongquan Liu, Zixian Liang, Jian Zhu, Lingbo Xia, Olivier Mondain-Monval, Thomas Brunet, Andrea Alù, <u>Jensen Li</u>
11:10-11:25	Invited	<b>Wavefront shaping with soft gradient-index metasurfaces</b> Y. Jin, R. Kumar, O. Poncelet, O. Mondain-Monval and <u>T. Brunet</u>
11:30-11:45	Invited	<b>Phononic Crystal Sensors: 2D, 2.5D and 3D Designs and Realizations</b> <u>F. Lucklum</u> , N. Mukhin, M. J. Vellekoop, R. Lucklum
11:50am-12:05pm	Org. Coll.	<b>Single-Phase Metamaterial Plates for Broadband Vibration Suppression</b> Penglin Gao, Alfonso Climente, <u>José Sánchez-Dehesa</u>
12:10-12:25	Org. Coll.	<b>Collective phenomena in mechanically coupled optomechanic cavities</b> Philippe Djourwé, Yan Pennec, <u>Bahram Djafari Rouhani</u>
12:30-12:42	Contr.	<b>Modulation of Out-of-Plane Reflection by a Tunable Acoustic Metasurface</b> X. S. Li, Y. F. Wang, A. L. Chen, <u>Y. S. Wang</u>
12:45-1:00	Invited	<b>Interfacial Thermoelectric Transport</b> <u>Mona Zebarjadi</u> , Naiming Liu, Tianhui Zhu, Md. Golam Rosul
1:00-2:00	<b>Lunch</b>	

Tuesday Afternoon (See Poster Lightning Talks/Posters)

## Wednesday Afternoon

ENR2 N120

1:00-1:12pm	Contr.	<b>Near-Perfect Broadband Absorption of Waterborne Acoustic Waves by Bubble Metascreens</b> Maxime Lanoy, Valentin Leroy, Anatoliy Strybulevych, Reine-Marie Guillermic, Eric J.S. Lee, Fabrice Lemoult, Arnaud Tourin, <u>John H. Page</u>
1:15-1:27	Contr.	<b>Synchronization of the Mechanical Dynamics of Optomechanical Oscillators</b> D. Navarro-Urrios, M. F. Colombano, G. Arregui, N. E. Capuj, A. Pitanti, J. Maire, A. Griol, A. Martinez, <u>C. M. Sotomayor-Torres</u>
1:30-1:42	Contr.	<b>Impact Propagation and Absorption in Bidimensional Colloidal Crystals</b> I. Buttinoni, J. Cha, W.-H. Lin, <u>S. Job</u> , C. Daraio, L. Isa
1:45-1:57	Contr.	<b>The Topological Character of Phonon Anharmonicity</b> <u>Sophia R. Sklan</u> , Baowen Li
2:00-2:30	Plenary	<b>Quantum Feedback of a Nanomechanical Oscillator</b> V. Sudhir, D. Wilson, S. Fedorov, N. J. Engelsen, A. Beccari, M. Beryhi Mohammadjafar, A.Ghadimi, <u>Tobias J. Kippenberg</u>
<b>Track: Optomechanics and Phonon Coupling</b>		
2:35-2:55	Keynote	<b>Nanophononic Devices Made of Van der Waals Materials: Insights from Atomistic Modeling</b> Shunda Chen, Aditya Sood, Giuseppe Barbalinardo, Eric Pop, <sup>3</sup> Ken Goodson, <u>Davide Donadio</u>
3:00-3:15	Invited	<b>Strained Phononic Crystal Resonators for Quantum Optomechanics at Room Temperature</b> A. H. Ghadimi, A. Agrawal, M. J. Beryhi, S. Fedorov, N. J. Engelsen, T. J. Kippenberg, and <u>D. J. Wilson</u>
3:20-3:35	Invited	<b>Optophononic Engineering in Micropillar Resonators</b> <u>N. D. Lanzillotti-Kimura</u>
3:40-3:55	Invited	<b>Disorder resilient phonon propagation through chiral optomechanical cooling and Topological pumping</b> S. Kim, I.H. Grinberg, C.W. Peterson, M. Lin, X. Xu, C. Harris, W.A. Benalcazar, J.M. Taylor, J.T. Bernhard, T.L. Hughes, <u>Gaurav Bahl</u>
3:55-4:30	<b>Break</b>	
<b>Track: Topological Acoustics and Phononics</b>		
4:30-4:50	Keynote	<b>Dynamics of Time-Dependent and Spatially Modulated Metamaterials</b> <u>Massimo Ruzzene</u>
4:55-5:15	Keynote	<b>Asymmetric Wave Propagation in Topological Lattices: An Experimental Exploration</b> Jihong Ma, Di Zhou, Kai Sun, Xiaoming Mao, <u>Stefano Gonella</u>

5:20-5:35	Org. Coll.	<b>Topological Order in a Nonlinear Elastic Model System</b> <u>Pierre A. Deymier</u> , Keith Runge
5:40-5:55	Invited	<b>Inverse Design of Quantum Spin Hall-Based Phononic Topological Insulators</b> S.S. Nanthakumar, X. Zhuang, <u>H. S. Park</u> , C. Nguyen, Y. Chen, T. Rabczuk
6:00-6:15	Invited	<b>Reconfigurable Nonlinear Phonon Diodes Using Topological Maxwell Lattices</b> Di Zhou, Jihong Ma, Kai Sun, Stefano Gonella, <u>Xiaoming Mao</u>
6:20-6:35	Invited	<b>Topological Acoustic: Effects and Materials</b> <u>Yan-Feng Chen</u> , Ming-Hui Lu, Cheng He, Si-Yuan Yu
6:40-6:55	Invited	<b>Space-time Modulated Elastic Metamaterials and Their Applications in Floquet Topological Insulators</b> Yangyang Chen, Hui Chen, Hussein Nassar, <u>Guoliang Huang</u>

## Thursday Morning

ENR2 N120

8:00-8:40am	<b>2019 Brillouin Prize Lecture: Alexander Balandin</b>	
	<b>Track: Topological Acoustics and Phononics (continued)</b>	
8:40-9:00	Keynote	<b>Odd Elasticity and Active Phonons</b> <u>Vincenzo Vitelli</u>
9:05-9:20	Invited	<b>Non-reciprocal Wave Propagation in Mechanically-Modulated Elastic Metamaterials</b> Benjamin M. Goldsberry, Samuel P. Wallen, <u>Michael R. Haberman</u>
9:25-9:40	Invited	<b>Vector Topological Solitons in Mechanical Metamaterial</b> <u>Michael J. Frazier</u> , Romik Khajetourian, Dennis M. Kochmann
	<b>Track: Thermal Phonons</b>	
9:45-10:05	Keynote	<b>Thermoelectric Properties of 2D Materials</b> <u>Keivan Esfarjani</u> , Mona Zebarjadi, Xiaoming Wang, Safoura Nayebsadeghi
10:10-10:40	<b>Break</b>	
10:40-10:55	Invited	<b>Controlling the Transport of Thermal Energy via Specular Scattering and Phonon Coherent Interference</b> <u>Martin Maldovan</u>
11:00-11:15	Invited	<b>Effects of Disorder on Vibrational Transport in Hybrid Organic/Inorganic Lead Halide Perovskites</b> Taishan Zhu, <u>Elif Ertekin</u>
11:20-11:32	Contr.	<b>Time-resolved Imaging of GHz Surface Acoustic Waves in Two-dimensional Phononic Crystals with an Arbitrary-Frequency Technique</b> <u>Osamu Matsuda</u> , Hiroki Muramoto, Hiroaki Koga, Hiroki Nishita, Kentaro Fujita, Motonobu Tomoda, and Oliver B. Wright
11:35am-12:05pm	Plenary	<b>Coherence and Localization in Phonon Heat Conduction</b> <u>Gang Chen</u>
12:10-12:30	Keynote	<b>Prediction of four-phonon scattering and related thermal properties</b> <u>Xiulin Ruan</u>
12:30-2:00	<b>Lunch</b>	

## Thursday Afternoon

ENR2 N120

2:00-2:15	Org. Coll.	<b>Nanophononic metamaterials: Extension to the bulk regime</b> Mahmoud I. Hussein, <u>Hossein Honarvar</u>
2:20-2:35	Invited	<b>Recent Progress in Tuning the Dynamic Response of Nonlinear Metastructures</b> <u>Nicholas Boechler</u>
2:40-3:10	Plenary	<b>Phonons and Thermal Transport in Low-Dimensions: From 2D to 1D</b> <u>Alexander A. Balandin</u>
3:15-3:30	Invited	<b>Studying Phonon Transport Using Empirical Molecular Dynamics with First Principles Accuracy</b> <u>Asegun Henry</u>
3:35-3:50	Org. Coll.	<b>Phononic Barrier Communication: Channeling Information and Energy through Metallic Barriers with High Fidelity, High efficiency and Low Bit Errors</b> T. Dearing, A. Thorpe, K. Baca, C. L. Arrington, J. Pillars, A. El-Osery, C.M. Reinke and <u>I. El-Kady</u>
3:55-4:10	Org. Coll.	<b>Demonstration of Waveguiding, Bends, Splitters in Macro-Scale Phononic Crystal Devices</b> Mohammadhosein G. Baboly, Samuel W. Oxandale, <u>Charles M. Reinke</u> , Ihab El-Kady, and Zayd C. Leseman
4:15-4:27	Contr.	<b>Phononic Band Gaps and Thermal Conductivity in Monolayer MoS<sub>2</sub> under pressure</b> A. Konstantopoulou, A. P. Sgouros, N. Aravantinos-Zafiris, G. Kalosakas, <u>M. M. Sigalas</u>
4:30-4:42	Contr.	<b>Scattering Suppression by Stealth Acoustic Materials</b> <u>V. Romero-García</u> , N. Lamothe, G. Theocharis, O. Richoux and L.M. Garcia-Raffi
4:45-4:57	Contr.	<b>Mechanical analogue of a Majorana bound state</b> <u>Johan Christensen</u>
5:00-5:30	<b>Break</b>	

## Thursday Afternoon (Parallel Sessions)

ENR2 S107

<b>Track: PC Design and Fabrication</b>		
5:30-5:42	Contr.	<b>Defects in the 3D Yablonovite Structure with Spheres</b> A.Konstantopoulou, <u>N. Aravantinos-Zafiris</u> , E. N. Economou, M. M. Sigalas
5:45-5:57	Contr.	<b>Effective Viscosity of Phononic Crystal</b> <u>Arkadii Krokhin</u> , Martín Ibarias, Jesús Arriaga
6:00-6:12	Contr.	<b>Three types of phononic bandgaps in 2D hypersonic phononic crystals</b>  <u>B. Graczykowski</u> , S.P. Wallen, K. Bley, A. Vega Flick, H-J. Butt, N. Boechler, N. Vogel and G. Fytas
<b>Track: AM Design and Fabrication</b>		
6:15-6:27	Contr.	<b>Broadband transmission enhancement through opaque barriers with symmetric diffusive slabs</b> <u>E. Chéron</u> , S. Félix, <u>V. Pagneux</u>
6:30-6:42	Contr.	<b>Multifunctional Metamaterials for Sound Absorption and Vibration Attenuation</b> <u>M. Oudich</u> , N. JRK Gerard, and Y. Jing

## Thursday Afternoon (Parallel Sessions)

ENR2 N120

<b>Track: Applications of AM and PC</b>		
5:30-5:42	Contr.	<b>A Metasurface comprising Spiral shaped Local Resonators for Surface Acoustic Waves</b> <u>V. Kyrimi</u> , B. J. Ash, G. R. Nash
5:45-5:57	Contr.	A Broadband Meta-lens by Gradient Helical-Structured Metamaterials <u>Shanjun LIANG</u> , <u>Jie ZHU</u>
6:00-6:12	Contr.	<b>Lattice Designs of Invisibility Cloaks in Full 2D Elasticity</b> <u>Hussein Nassar</u> , Yangyang Chen, Guoliang Huang
6:15-6:27	Contr.	<b>Elastic Metasurfaces for Focusing Flexural Lamb Waves toward Enhanced Energy Harvesting</b> <u>S. Tol</u>
6:30-6:42	Contr.	<b>Realizing Bianisotropic Acoustic Metamaterials</b> <u>Caleb F. Sieck</u> , Stephanie G. Konarski, Matthew D. Guild, Charles A. Rohde
6:45-6:57	Contr.	<b>A honeycomb acoustic network sideloaded with Helmholtz resonators</b> Li-Y. Zheng, Ze-G. Chen, Y. Wu, J. Mai, S. Fèlix, V. Tournat, <u>V. Achilleos</u> , O. Richoux, G. Theocharis, V. Pagneux



## Friday Morning

ENR2 N120

8:00-8:30am	<b>2019 Phononics Young Investigator Award: Johan Christensen</b>	
8:30-9:00	Plenary	<b>Seismic Metamaterials: from Optics to Geophysics</b> S. Brûlé, S. Enoch and <u>S. Guenneau</u>
<b>Track: Applications of AM and PC</b>		
9:05-9:25	Keynote	<b>Meta-structures for Vibration Mitigating Structural Components</b> <u>Kathryn H. Matlack</u>
9:30-9:50	Keynote	<b>Control of Mechanical Waves by Metagratings and Metaclusters</b> Pawel Packo, Andrew N. Norris and <u>Daniel Torrent</u>
9:55-10:10	Invited	<b>Slow sound based metamaterials: From perfect absorbers to metadiffusers</b> N. Jiménez, W. Huang, V. Romero-García, V. Pagneux, T. Cox, and <u>J.-P. Groby</u>
10:15-10:30	Invited	<b>Effective transmission conditions across a resonant bubbly metascreen</b> <u>A. Maurel</u> , K. Pham, J.-F. Mercier, D. Fuster and J.-J. Marigo
10:30-11:00	<b>Break</b>	
11:00-11:30	Plenary	<b>From Time-Reversed Waves to “Time Materials”</b> <u>Mathias Fink</u>
11:35-11:50	Invited	<b>Application of Metasurfaces in Fine Manipulation of Sound Field and High-capacity Acoustic Communication</b> <u>Bin Liang</u> , Jianchun Cheng, Xue Jiang, Yifan Zhu, Xuefeng Zhu, Yong Li, Yun Jing, Likun Zhang, Chengwei Qiu
11:55am-12:10pm	Invited	<b>The Dynamics of Twisted and Rotation-Symmetric Metamaterials</b> <u>Anastasiia O. Krushynska</u> , Ada Amendola, Federico Bosia, Pavel Galich, Chiara Daraio, Stephan Rudykh, Fernando Fraternali, Nicola M. Pugno
12:15-12:30	Invited	<b>Aqueous Acoustic Metamaterials and Metal Additive Manufacturing</b> <u>Charles A. Rohde</u> , Matthew D. Guild, Alec K. Ikei, Stephanie G. Konarski, Christina J. Naify, and Caleb F. Sieck
12:30-1:40	<b>Lunch</b>	

## Friday Afternoon

ENR2 N120

<b>Track: PC and AM in Biology</b>		
1:40-2:00	Keynote	<b>Applications of Acoustic Metamaterials in Medicine</b> Jiaying Wang, Oscar Vazquez Mena, Monica Guma, <u>James Friend</u>
2:05-2:25	Keynote	<b>Harnessing hypersound phonons in architected soft matter</b> George Fytas
2:30-2:45	Invited	<b>Shear Waves in Bouligand Architectures</b> Nicolas Guarin, Juan David Gomez, David Kisailus, <u>Pablo Zavattieri</u>
2:50-3:05	Invited	<b>Phenotypic characterization of tissues with phonons: from tumors to biological metamaterials</b> Angélique Carlotta, Jérémie Margueritat, Hichem Mertani, Alice Berthelot, Quentin Martinet, Xavier Dagany, Sylvain Monnier, Jean-Paul Rieu, Charlotte Rivière, M. Abi Ghanem, L. Khoryati, S. Raetz, A. Khanolkar, R. Behrou, N. Boechler, and <u>Thomas Dehoux</u>
3:10-3:25	Invited	<b>A metamaterial that makes you cry: onion epidermis behaves as a locally resonant metamaterial</b> <u>M. Abi Ghanem</u> , L. Khoryati, S. Raetz, A. Khanolkar, R. Behrou, N. Boechler, and T. Dehoux
3:25-3:55	<b>Break</b>	

## Friday Afternoon (Parallel Sessions)

ENR2 S107

<b>Track: Topological Acoustics and Phononics</b>		
3:55-4:07	Contr.	<b>Non-Reciprocal Elastic Wave Propagation Leveraging Discretely Modulated Waveguides</b> <u>E. Riva</u> , G. Cazzulani, M. Di Ronco, D.E. Quadrelli, F. Braghin
4:10-4:22	Contr.	<b>Valley Based Splitting of Topologically Protected Helical Waves in Elastic Plates</b> <u>Marco Miniaci</u> , R. K. Pal, B. Morvan, R. Manna, M. Ruzzene
4:25-4:37	Contr.	<b>Self-induced Topological Transition in a Nonlinear Phononic Lattice</b> <u>Rajesh Chaunsali</u> , Georgios Theocharis
4:40-4:52	Contr.	<b>Topological Nanoelectromechanical Lattices</b> Jinwoong Cha, Kun Woo Kim, Chiara Daraio
4:55-5:07	Contr.	<b>Phononic Structures for Quantum Analogues, etc.</b> <u>Keith Runge</u> , Pierre A. Deymier
5:10-5:22	Contr.	<b>Topological Space-Time Phononic Crystal With Deep Sub-Wavelength Anomalous Edges States</b>

		M. Oudich, Y. Deng, and <u>Y. Jing</u>
5:25-5:37	Contr.	<b>Spiraling Metamaterials: From Wave beaming to Topological Insulation</b> <u>Osama R. Bilal</u> , André Foehr, Sebastian D. Huber, Chiara Daraio
		<b>Track: Thermal Phonons</b>
5:40-5:52	Contr.	<b>Tunneling of Thermal Phonons through a Vacuum Gap between Piezoelectrics</b> Zhuoran Geng and <u>Ilari J. Maasilta</u>
6:00-6:30		<b>Closing Ceremony (ENR2 N120)</b>

## Friday Afternoon (Parallel Sessions)

ENR2 N120

		<b>Track: Nonlinear PC and AM</b>
3:55-4:07	Contr.	<b>Asymmetric and Nonreciprocal Wave Propagation in One-Dimensional Periodic Media</b> <u>Behrooz Yousefzadeh</u> , Chiara Daraio
4:10-4:22	Contr.	<b>Nonlinear Wave Propagation in Reconfigurable Lattices with Bistable Springs</b> <u>Julien Meaud</u> , Michael Rouleau
4:25-4:37	Contr.	<b>Anomalous Collisions of Elastic Vector Solitons in Mechanical Metamaterials</b> Bolei Deng, Vincent Tournat, <u>Pai Wang</u> , and Katia Bertoldi
4:40-4:52	Contr.	<b>Stochastic Design Optimization of a Chain of Nonlinear Resonators</b> <u>Samy Missoum</u> , Seyed Saeed Ahmadisoleymani
		<b>Track: Optomechanics and Phonon Coupling</b>
4:55-5:07	Contr.	<b>Electrothermal Simulations of Two- and Three-Dimensional Transistors Based on GaN</b> <u>Qing Hao</u> , Yue Xiao
5:10-5:22	Contr.	<b>Coupling of a 2D-Periodic Dispersive Electric Circuit to a 1D Tunable Piezoelectric Phononic Crystal</b> A. Kutsenko, A. Shuvalov, <u>O. Poncelet</u>
5:25-5:37	Contr.	<b>Focusing Surface Acoustic Wave Launchers for Optoelectromechanical Devices</b> T. Makkonen, T. Häkkinen, S. Mertin, T. Hassinen, K. Grigoras, S. Zanotto, A. Pitanti, <u>J. Ahopelto</u>
5:40-5:52	Contr.	<b>Electrophononic effects in Ferroic Perovskites</b> <u>P. Torres</u> , J. A. Seijas-Bellido, C. Escorihuela-Sayalero, J. Iñíguez and Riccardo Rurali
6:00-6:30		<b>Closing Ceremony</b>

Poster Presentations/Lightning Talks (Tuesday afternoon) – ENR2 S107 and N120

**Track: AM Design and Fabrication**

**Continuously Tunable Acoustic Metasurface for Acoustic Source Illusion**

A. L. Chen, X. M. Wang, Y. S. Wang

**Acoustic Bianisotropic Metasurfaces**

Li Quan, Andrea Alù

**Non-Reciprocal Willis Coupling in Acoustic Scatterers**

Li Quan, Andrea Alù

**Abnormal Resonance Gap by Rotational Resonance in Flexural Elastic Metamaterials**

Sung Won Lee, Joo Hwan Oh

**Sub-wavelength focusing with pillared metasurface**

Yabin Jin, Wan Wang, Bahram Djafari-Rouhani

**Sound opacity, in the light of acoustic metamaterials**

A. Elayouch, M. Addouche, Y. Tejda and A. Khelif

**Broadband Acoustic Cloak Design using Gradient-based Optimization**

Feruza A. Amirkulova, Andrew N. Norris

**Elastic Metamaterials with Magnetic Inclusions for Wave Filtering**

A. Guell Izard, L. Salari-Sharif, B. Haghpanah, M. Tootkaboni, L. Valdevit

**Acoustic wave generation in heterogeneous Metal-on-Silicon phononic crystals**

Trong Huynh-Buu Ngo, Vien Van

**Surface Acoustic Wave Manipulation Using Piezoelectric Metamaterials**

Salih Alan, Ahmed Allam, Alper Erturk

**Resonance-Induced Poroelastic Coupling in Fluid-Saturated Microlattices**

Gunho Kim, Antonio Palermo, Paolo Celli, Chiara Daraio

**Analysis of Distributed 1D Damped Acoustic Metamaterials with the Spectral Element Method**

Sabiju Valiya Valappil, Alejandro M. Aragon, Fred van Keulen

**Feasibility and Design of a Multimodal Absorbing Metamaterial**

Amanda D. Hanford, Benjamin S. Beck, Andrew S. Wixom

## **Track: Applications of PC and AM**

### **Wave Attenuation by One-Dimensional Fluid-Saturated Porous Metamaterials**

Yan-Feng Wang, Jun-Wei Liang, A-Li Chen, Yue-Sheng Wang, Vincent Laude

### **Experimental Evidence of Reconfigurable Waveguide Based on Whispering Gallery Mode**

Jinfeng Zhao, Weitao Yuan, Xiaodong Cui, Bernard Bonello, Bahram Djafari-Rouhani, Yongdong Pan, Zheng Zhong

### **Phononic Band Gap Effects in Finite Serially Pivoted Pendulum Chains**

Hasan Al Ba'ba'a, Mostafa Nouh

### **Study on Phononic Crystal-based Waveguides for Ultrasonic Transducers**

Jia-Hong Sun, Cheng-Fu Chou, Yung-Yu Chen

### **Resonant Devices for Stealth and Discretion in Underwater Acoustics**

A.-C. Hladky-Hennion, C. Croënne, B. Dubus

### **Effect of mean flow on the sound propagation properties of a periodic Helmholtz Resonator silencer**

Jiangwei Liu, Dianlong Yu, Jihong Wen

### **Real-Time Elastic Wave Control with Programmable Metasurfaces**

Yangyang Chen, Xiaopeng Li, Hussein Nassar, Guoliang Huang

### **Acoustic absorption of metamaterials embedded with coiled-up channels**

Honggang Zhao, Yang Wang, Xianchao Ma, Jihong Wen

### **Transmodal Elastic Metasurface for Mode Conversion from longitudinal to shear wave**

M. S. Kim, W. R. Lee<sup>2</sup> Y. Y. Kim, J. H. Oh

### **Piecewise Gradient Metabarrier for Rayleigh Surface Wave Isolation**

Gui-lan Yu, Kai-qiang Qin, Ze Liu

### **Nonreciprocal Anderson Localization of Ultrasound in a Viscous 2-dimensional Phononic Crystal**

Jyotsna Dhillon, Andrey Bozhko, Ezekiel Walker, Arup Neogi, Tae-Youl Choi and Arkadii Krokhin

### **Absence of Negative Refraction in Elastic Superlattice with Hyperbolic Dispersion**

Yurii D. Zubov, Arkadii A. Krokhin, Bahram Djafari-Rouhani

### **Complex Dispersion Relation Recovery from 2D phononic crystals and Metamaterials of Finite Size**

A. Cebrecos, V. Romero-García, J. P. Groby

**Acoustic Imaging with a 3D Diamond Metalens**

Maxime Lanoy, Fabrice Lemoult, Valentin Leroy, Geoffroy Lerosey, John H. Page, Arnaud Tourin

**0.5 MHz A Mode Ultrasound Imaging by an Acoustic Metamaterial Collimating Lens**

Ezekiel Walker, Yuqi Jin, Tae-Youl Choi, Arkadii Krokhin and Arup Neogi

**Gradient Index Phononic Crystals for Acoustic Power Transfer Applications**

Ahmed Allam, Kareem Sabra, Alper Erturk

**Flow-induced vibration of hydrofoils with embedded acoustic black holes**

Kaushik Sampath, Caleb F. Sieck, Matthew D. Guild, Charles A. Rohde

**A Single-Detector Acoustic Camera based on Space-Coiling Anisotropic Metamaterial**

Tianxi Jiang, Qingbo He

**Tunable Magnetoelastic Phononic Crystals**

Emily R. Glover, Paul S. Keatley, Robert J. Hicken, Alastair P. Hibbins

**Travelling wave attenuation in a monatomic chain with a multicell diatomic branch**

Mary Bastawrous, Mahmoud I. Hussein

**Dynamic Effective Properties of Phononic Crystals and Locally Resonant Metamaterials by Dispersion Matching**

Morgan J. Henderson, Mahmoud I. Hussein

**Bound in continuum states, induced transparency and perfect absorption in solid-liquid multilayers.**

M. Amrani, I. Quotane, E. H. El Boudouti, B. Djafari-Rouhani, A. Talbi, B. Piwakowski

**Multifunctional Metamaterials for Sound Absorption and Vibration Attenuation**

M. Oudich, N. JRK Gerard, and Y. Jing

**Track: Nonlinear PC and AM**

**Weakly nonlinear elastic wave metamaterials with mass-spring and layered models**

Yi-Ze Wang, Yue-Sheng Wang

**Internally-Resonant Wave-Wave Interactions in Weakly Nonlinear Periodic Media**

Matthew D. Fronk , Michael J. Leamy

**Nonlinear Nanoelectromechanical Lattices**

Jinwoong Cha, Chiara Daraio

### **Nonlinear Dispersive Waves in 2D Micropolar Lattices**

Samuel P. Wallen, Benjamin M. Goldsberry, and Michael R. Haberman

### **Broadband Acoustic Non-reciprocity in a Passive, Nonlinear Metamaterial**

Lezheng Fang, Amir Darabi, Alexander F. Vakakis, Michael J. Leamy

### **Towards the design of nonlinear locally resonant metamaterials with emergent attenuation zone**

Valentina Zega, Priscilla B. Silva, Michael J. Leamy, Varvara G. Kouznetsova, Marc G.D. Geers

## **Track: Optomechanics and Phonon Coupling**

### **Compressed photoacoustic imaging in scattering media**

Yuning Guo, Xiaobo Yin, Baowen Li

### **Coherent Interplay between Surface Acoustic Waves and Coupled Phononic Resonators**

Laetitia Raguin, Olivier Gaiffe, Roland Salut, Valérie Soumann, Jean-Marc Cote, Vincent Laude, Abdelkrim Khelif, Sarah Benchabane

### **Electrophononic effects in Ferroic Perovskites**

P. Torres, J. A. Seijas-Bellido, C. Escorihuela-Sayalero, J. Iñíguez and Riccardo Rurali

### **Valley-mechanical transduction in monolayer semiconductors**

Hao-Kun Li, King Yan Fong, Hanyu Zhu, Quanwei Li, Siqi Wang, Sui Yang, Yuan Wang, Xiang Zhang

## **Track: PC Design and Fabrication**

### **Control wave propagation in tunable phononic crystals with Ferromagnetic Shape Memory Alloys**

Xiaowei Xue, Feng Jin

### **Understanding Anisotropic Phononic Bandgap of Colloidal Crystals**

Hojin Kim, Eric M. Furst, Bahram Djafari-Rouhani, Zuyuan Wang, George Fytas

### **Design and Fabrication of Tubular Phononic Crystals**

F. Lucklum and M. J. Vellekoop

### **Bandgaps Prediction and Inverse Design of One-dimensional Phononic Crystals by Neural Networks**

Chen-xu Liu, Gui-lan Yu

### **Study on Laminated Plate Phononic Crystal by Nonlocal Elastic Theory**

Hongping Hu, Yuantai Hu, Yuanxun Wang, Qin Qian

**Multi-focusing of the lowest-order antisymmetric Lamb mode in a gradient-index phononic crystal**

Xiaodong Cui, Jinfeng Zhao, Olga Boyko, Bernard Bonello, Zheng Zhong

**Phononic Crystal Beam with Graded concentrated masses**

Xiang Fang, Kuo-Chih Chuang, and Z.L. Huang

**Rewritable Phononic Crystals**

Lizhu Li, Amey Khanolkar, Pierre Lucas, Pierre Deymier, Nicholas Boechler, Julien Ari, Arif Hasan, Florian Allein

**Disorder in 2D Phononic Crystal Membranes Lowers the Thermal Conductivity**

M. Sledzinska, B. Graczykowski, F. Alzina, U. Melia, K. Termentzidis, D. Lacroix and C.M. Sotomayor Torres

**Phonon Spectral Energy Density Analysis of Silicon Membranes with Disordered Nanoholes**

Chia-Nien, Tsai and Mahmoud I. Hussein

**Track: Topological Acoustics and Phononics**

**Topological Edge Modes in Quasiperiodic Locally Resonant Metastructures**

Yiwei Xia, Alper Erturk, Massimo Ruzzene

**Topological Solitons in Substrate-free Metamaterials**

Romik Khajehtourian, Dennis Kochmann

**Tunable Refraction of Valley-protected Lamb Waves in Pillared Phononic Crystals**

W. Wang, B. Bonello, B. Djafari-Rouhani, and Y. Pennec

**Topological Pumping In Spatially Modulated Elastic Media: Theory**

Matheus I. N. Rosa, Emanuele Riva, Raj Kumar Pal, Massimo Ruzzene

**Topological Pumping In Spatially Modulated Elastic Media: Experiments**

E. Riva, M. I. N. Rosa, M. Ruzzene, F. Braghin

**Tunable Acoustic Topological Insulator**

Amir Darabi, Michael J Leamy

**Spectral Element and Finite Element based Topological Edge and Localization of Protected Interface Modes in 1D Phononic Crystal Structures**

Muhammad and C. W. Lim

**Topology of Elastic Waves via Spectral Analysis of their Amplitudes and Phases**

Lazaro Calderin, M. Arif Hasan, Pierre Lucas, Keith Runge, Pierre A. Deymier



### **Topological Acoustic Sensing**

Trevor D. Lata, Keith Runge, Pierre A. Deymier

### **Mechanical Elastic Pseudospin and Coherent Superposition: Experiment and Modeling**

M Arif Hasan, Lazaro Calderin, Neil Jenkins, Trevor Lata, Pierre Lucas, Keith Runge, Pierre A Deymier

### **Floquet topological acoustic resonators and acoustic Thouless pumping**

Yang Long, Jie Ren

### **Spin angular momentum in the acoustic and elastic waves**

Yang Long, Jie Ren

### **Non-reciprocal Behavior of One-dimensional Piezoelectric Structures with Space-time Modulated Electrical Boundary Conditions**

C. Croënne, J. O. Vasseur, O. Bou Matar, A.-C. Hladky-Hennion and B. Dubus

### **Realization of a Vibration Diode using a Temporally Modulated Metabeam**

Mohammad A. Attarzadeh, Jesse Callanan, Mostafa Nouh

### **Asymmetric Elastic Wave Propagation in Modulated Granular Phononic Crystal**

F. Allein, S.P. Wallen, G. Theocharis, N. Boechler

## **Track: Thermal Phonons**

### **Controlling Anisotropic Heat Transfer in MoS<sub>2</sub>**

Shunda Chen, Aditya Sood, Eric Pop, Kenneth E. Goodson, Davide Donadio

### **Phonon heat transfer across the quantum vacuum**

Hao-Kun Li, King Yan Fong, Rongkuo Zhao, Sui Yang, Yuan Wang, Xinag Zhang

### **On the Enhancement of Thermophysical Properties of Graphene-Based Nanofluids**

E Chavez-Angel, M.R. Rodriguez-Laguna, P. Gomez, C.M. Sotomayor Torres

### **Enhancing Nonequilibrium Thermal Conduction at the Nanoscale**

Hossein Honarvar, Joshua Knobloch, Travis D. Frazer, Begoña Abad, Mahmoud I. Hussein, Henry C. Kapteyn, Margaret M. Murnane, Jorge N. Hernandez-Charpak

### **Tunable Thermal Transport in Polymerized Fullerene Structures**

Abduljabar Alsayoud, Krishna Muralidharan, Lazaro Calderin, Keith Runge, Pierre Deymier

### **Phonon Transport in Si Films with Patterned Periodic Nanopores or Nanoslots**

Qing Hao, Dongchao Xu, Yue Xiao, Fabian Javier Medina, Qiyu Chen