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NEW DEVELOPMENTS IN POLYCRYSTALLINE MICROSTRUCTURES TRACK NUMBER (1000)

Katayun Barmak* **and Yekaterina Epshteyn†**

* Columbia University
Department of Applied Physics and Applied Mathematics, 200 S.W. Mudd, Mail Code: 4701 New York, NY 10027, USA
kb2612@columbia.edu and https://apam.columbia.edu/katayun-barmak

† University of Utah,
Department of Mathematics, The University of Utah, Salt Lake City, UT 84112, USA
epshteyn@math.utah.edu and http://www.math.utah.edu/~epshteyn/

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ABSTRACT

Most technologically useful materials are polycrystalline microstructures composed of myriad small monocrystalline cells/grains separated by grain boundaries/interfaces. Grain boundaries play a crucial role in determining the properties of materials across a wide range of scales. The control of polycrystalline microstructures through processing is essential to enhancement of materials properties, such as mechanical, thermal, magnetic, optical and electrical properties. Therefore, a grand challenge problem in engineering of polycrystals is to develop prescriptive process technologies capable of producing an arrangement of grains that provides for a desired set of materials properties. The mini-symposium will bring together experts from materials science, computational science, mathematics and data science, and will feature talks on the latest results on various aspects of the field that range from experiments and algorithm design to modeling and data analytics.

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