

MIP: 2D Crystal Consortium
DMR-1539916, sponsored jointly with 2DLM

2017

Graphene and Beyond Workshop - 2017 Edition

The Graphene and Beyond Workshop, in its 5th year (2nd year of joint sponsorship with 2DCC), is a collaboration between the Center for 2D and Layered Materials (2DLM) and the 2DCC-MIP at Penn State. The workshop aims to enhance synergy in the community and build toward a strong future in 2D crystal science and technology. The 2017 workshop consisted of morning tutorials and afternoon talks focused on 2D material synthesis, properties, theory and optic/electronics including talks on recent results from the 2DCC and other institutions and discussion on commercialization opportunities for 2D materials.

The poster session consisted of 35 student and 18 non-student entries. The 2DCC supported travel for 3 non-R1 institution attendees (1 PUI, 2 MSIs). A 2DCC user meeting was held prior to the workshop to evaluate facility progress, access and future directions from the user point of view.

Attendees Total: 178 (79 Students)
Unique Institutions: 56
Academic (30; including 8 non-R1)
Government (8)
Industry (17)
International (1)



DMR DIVISION OF
MATERIALS RESEARCH
DIRECTORATE FOR MATHEMATICAL AND PHYSICAL SCIENCES

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Figure Title: Graphene and Beyond Workshop 2017 Pictures.

Figure Caption: Upper Panel: Group photo of the attendees at the 2017 edition of the Graphene and Beyond Workshop. Lower Left Panel: Photo of audience members and presenter during one of the talks/tutorials. Lower Right Panel: Photo of 3 poster contest winners.

What Has Been Achieved: The Graphene and Beyond Workshop aims to enhance synergy in the 2D crystal community. The workshop was a success in bringing together a diversity of institutions across academia, government and industry and individuals across career levels with exposure to technical talks, tutorials, and poster exposition. Several individuals from non-R1 academic institutions (2 minority-serving institutions and 1 predominantly undergraduate institution) received travel support from the 2DCC in 2017 in order to fully participate in the workshop as a part of the 2DCC's effort to broaden participation. A participant from Juniata College (a predominantly undergraduate institution – PUI) received travel support to the 2017 edition of the workshop and subsequently participated as an onsite, external user during the summer of 2017 receiving training in characterization techniques and thin film synthesis. Two additional participants at the 2017 workshop submitted user proposals after the event for research in Bulk Crystal Growth.

One faculty participant from the University of Puerto Rico – Humacao (a minority-serving institution – MSI) received 2DCC travel support to the 2016 edition of the workshop and is currently a remote, external 2DCC user in thin film synthesis, along with another faculty member. An undergraduate student who was a user on that user project

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subsequently matriculated at Penn State University as a graduate student and is now a part of a new 2DCC local user project at Penn State.

Importance of Achievement: The advancement of technical research, professional development, and broadening participation in 2D crystal science is critical to the future of the 2D community.

Unique Features of the MIP That Enabled Project: The 2DCC platform has 3 main pillars (in-house research, external user program, and education/outreach/diversity activities in support of the research). These 3 pillars are each represented at the workshop by virtue of those attending and presenting these various aspects in technical talks, tutorials and posters. As a part of its Education/Outreach/Diversity program, the 2DCC offers travel funds to broaden participation at this workshop for professional development as well as recruitment to the 2DCC facility through user proposals.