

## 2DCC-MIP User Facility

### An NSF Materials Innovation Platform

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**Description:** The Two-Dimensional Crystal Consortium - Materials Innovation Platform (2DCC-MIP) is an NSF-funded national user facility (cooperative agreements DMR-1539916 and DMR-2039351) focused on the synthesis of two-dimensional (2D) layered chalcogenides for applications in next generation electronics. The three main components of the 2DCC-MIP are the User Facility/User Program, In-house Research, and a focused Education and Outreach program targeted to external users. The 2DCC in-house research program and the user program are coordinated to accelerate discovery in 2D materials by perfecting thin-film crystals through the tight interplay of synthesis techniques and *in situ* characterization, bulk crystal synthesis and exfoliation, and predictive modeling from the atomic- to the macro-scale including complex growth kinetics. In addition to supporting our robust community of 2D materials researchers by organizing, hosting, and presenting at conferences and workshops, hosting monthly research webinars, and providing training resources online; our Education and Outreach programs facilitate onsite intensive training by early career researchers from a diversity of institutions by providing opportunities for travel and housing support.

Academic, governmental and industrial users interested in participating in the 2DCC User Program can access the specialized samples, synthesis equipment, simulation tools and staff expertise through three primary mechanisms (sample request, data or parameter request, or research project) through proposals that are reviewed by an external panel of experts. Sample requests are for a limited number of well-characterized samples free of charge through a brief on-line application which describes their needs and research interests – an available sample is posted on the 2DCC website. Data requests are for access to growth recipes, characterization and simulation data or ReaxFF parameter requests from in-house research efforts. Research projects are for more extensive access to 2DCC capabilities for development projects. On-site use of the 2DCC facility by external researchers is highly encouraged.