

## ABSTRACT

## Development of Stable, Green and Sustainable Two-Dimensional Materials

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Taking inspiration from graphene, the materials community started exploring atomically thin materials, which resulted in the development of a two-dimensional (2D) materials family consisting of elemental metals, metal carbides, chalcogenide, oxide, nitride, and others. The synthesis of all these materials involves energy intensive processes or harmful/toxic chemicals. In the talk, we will discuss few of the recent work involving nature inspired energy efficient and green route of synthesis of 2D materials. In current talk, the green synthesis of various 2D materials such as graphene, TMDs, TMC etc will be discussed. The recent work of two-dimensional natural silicates, telluride and oxides will be presented. The materials synthesized in such methods are found to be stable and easily scalable. The large scale produced ultra-thin 2D sheets can be utilized for various applications in electronics, energy, environmental and healthcare etc.