

Editorial

Special issue: 2D materials

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The isolation of graphene and its unique optoelectronic properties paved the way for the exploration of other atomically thin or 2D materials. While only a few 2D crystals and their combinations have been explored thus far, this field is without doubt one of the most prolific areas of research. Furthermore, these materials strongly interact with light through excitons, phonons and polaritons, which allows the exploration of new physics and novel photonic devices.

Many reviews have been written on atomically thin materials but we believe that a special issue focused on light interaction covering their optical properties and applications will provide a timely perspective on this fast growing field. Therefore, in this special issue of “2D materials” we have a number of papers from leading groups in the world. These papers range from the study of crystal properties such as defects through Raman and photoluminescence to hybrid applications including other materials such as silicon electronics and colloidal nanocrystals. This collection also includes light-matter interactions in these material systems through excitons and polaritons in general. These interactions provide a wonderful playground for new physics to be exploited in new fields such as valleytronics and low-loss plasmonics. This special issue intends to provide a window into the exciting world of light-matter interaction with 2D materials to further exploration and discussion in the field. Optics has been utilized to provide insight into the crystallinity, defects, plasmonic-like interactions and inter-coupling among 2D structures. Even though it is very hard to predict the outcome of a vibrant field at early stages of research, new physics and potential devices have been identified and are currently being explored.

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