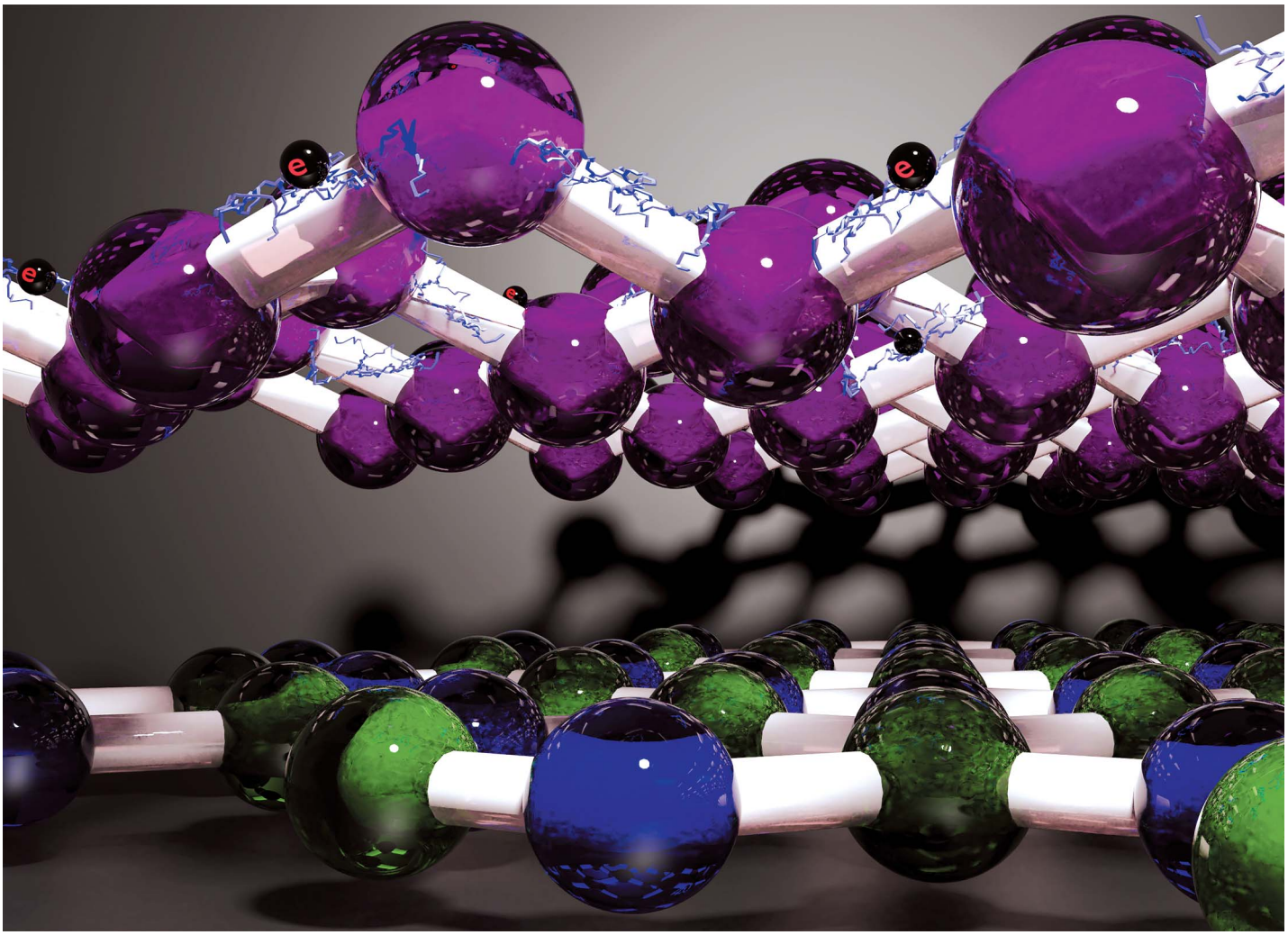
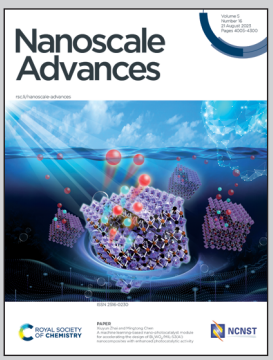


Showcasing research from Professor Samia Subrina's lab, Department of Electrical and Electronic Engineering, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh.

Numerical characterization of the electronic and optical properties of plumbene/hBN heterobilayer using first-principles study

A detailed investigation of the structural, electronic, and optical characteristics of a plumbene/hBN heterobilayer has been conducted using first-principles calculations under the framework of density functional theory. One of the fascinating findings of the study is that the composite structure exhibits a direct bandgap compared to pristine plumbene, which has an indirect bandgap. In addition, a semiconductor to metallic transition takes place upon the introduction of biaxial compressive strain. Optical properties suggest the potential of the proposed heterobilayer in solar cells and UV photodetectors.

As featured in:



See Samia Subrina *et al.*, *Nanoscale Adv.*, 2023, **5**, 4095.

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