

IV. Materials, Fabrication and Integration for Sensor/System Architectures

(S1) Graphene: Materials, Functionalities and Novel Device Concepts

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Graphene is a fascinating new material with potential to revolutionize nanoscale devices and sensors for both civilian and military applications. This session will focus on, but not limited to, the following areas of research: (1) high quality graphene synthesis (MBE, CVD, chemical and mechanical exfoliations etc.) and related characterization techniques, (2) fundamental understanding of the novel electrical, optical, magnetic, chemical, thermal and mechanical properties of graphene, (3) techniques to tailor and control graphene nanostructures, such as graphene nanoribbons (GNR) and other more complicated structures, (4) control and understanding of graphene edges and their effects on graphene properties, (5) novel device and sensor concepts that exploit the unique properties of graphene and benchmark against conventional approaches, (6) theoretical understanding and numerical modeling.