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**Snow flake shaped gold nanostructures templated on graphene: an avenue to fabricate novel nano electronic devices** KABEER JASUJA, VIKAS BERRY, Kansas State University — Non spherical gold nanoparticles such as rods, multipods, polygons, cubes, stars and branched nanostructures have generated significant research attention in the past few years. Such anisotropic nanostructures have been shown to exhibit size and shape dependent properties which are either significantly different or highly pronounced from their spherical counterparts. The unique properties of anisotropic nanostructures (such as localized surface plasmon resonance and surface enhanced fluorescence) make these ideal candidates for a broad range of emerging applications in photonics, opto-electronics, biomedical labeling, sensing and imaging. One of the foremost challenges in utilizing such properties is integrating the anisotropic gold nanostructures into devices which can justifiably tap these properties. Here we demonstrate a simple colloidal synthetic route that results in the formation of snow-flake shaped nanostructures of gold (Au SFs) templated on the nano-sheets of Graphene-oxide(GO). Graphene nanosheets have generated renewed interest in recent years due to their unique 2-dimensional nature and associated electronic, physical and chemical properties. An assembly of Au SFs supported on GO sheets will not only give way to the next generation electronic and optoelectronic nanodevices but will also find wide ranging applications in a number of industrially relevant reactions such as catalysis, fuel cell technology and pollution control.

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