Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Microwave induced in-situ deposition of Gold and Silver nanoparticles on chemically modified sheets of graphene: Avenue to build Graphene-metal interface KABEER JASUJA, VIKAS BERRY, Kansas State University — In recent years there has been a great interest in the architecture of 2-D sheets of graphene which have been shown to display remarkable electronic, physical and chemical properties. An extremely high conductivity of graphene sheets along with the ease these can be prepared, has already made graphene as the material of choice for applications in several electronic, optoelectronic and biodevices. There is a great deal of interest in interfacing graphene sheets with other low dimensional nano structures for building novel hybrids. Coupling such low dimensional materials at nano scale yield novel composites with interesting properties. In this study we synthesized nanoparticles of gold and silver on the sheets of graphene-oxide using a one step microwave heating method. Our results indicate that the sheets of chemically modified graphene act as excellent templates for in-situ formation of gold and silver nanoparticles. The advantage of this present synthetic route lies in not using the conventional low molecular weight stabilizing agents which can otherwise react with the graphene sheets leading to impurities. This simple processing approach opens up a new way to synthesize hybrid sheets of graphene decorated with gold and silver nanoparticles which can be used in developing novel catalysts and composites.

Vikas Berry
Kansas State University

Date submitted: 29 Nov 2008 Electronic form version 1.4