Graphenide Solutions and Films

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Up to this time, there has been substantial progress in the production of graphene on a large scale through solution route, which can replace the mechanical exfoliation and epitaxial growth on silicon carbide method.

It was reported by our group recently that a method consists in exfoliating graphene from graphite and dispersing the graphene in organic solvents without applying sonication or surfactant[1-4]. Our research is devoted to study the solutions of negatively charged graphene (graphenide) which are prepared from graphite intercalation compounds (GICs). The GICs are synthesized by reduction of graphite with an alkali metal, typically with potassium. Three different potassium GICs were synthesized and studied by resonant Raman scattering, by varying the exciting wavelength from UV to infrared, with important consequences for the characterization of the graphenide solutions
Furthermore, graphene solutions were deposited on substrates and characterized by Raman. Finally, thin graphene films were made from the solution and preliminary studies on these (solution route) transparent conducting films will be presented.

References

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Figures

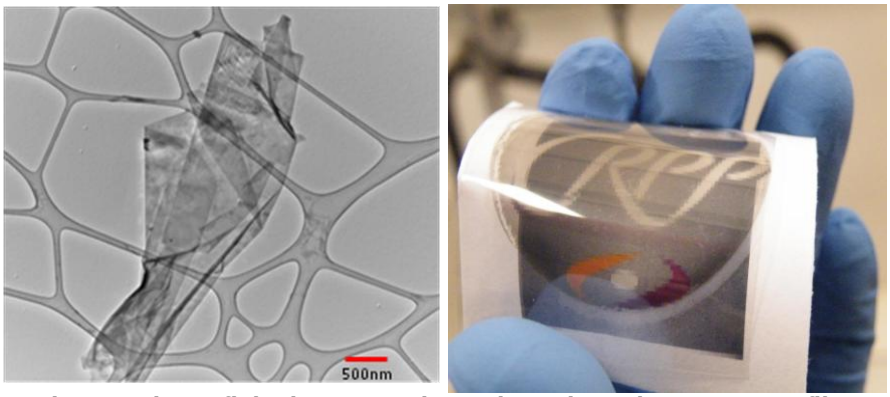

Fig. Graphene flake in THF and Graphene based transparent film