

Abstract Submitted
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Synthesis, characterization and thermal stability of CVD-grown graphene nanoribbons JESSICA CAMPOS-DELGADO, Advanced Materials Department, IPICYT, Mexico, Y.A. KIM, ENDO MORINOBU, Shinshu University, Japan, KATSUMI KANEKO, Chiba University, Japan, HUMBERTO TERRONES, IPICYT, Mexico, MILDRED S. DRESSELHAUS, ECCS, MIT, USA, MAURICIO TERRONES, IPICYT, Mexico — A route to produce large amounts of nanometer scale graphene ribbons is presented. The process involves the thermal decomposition of ethanol-ferrocene and minute concentrations of thiophene solutions. The material consists of stacked graphene sheets with dimensions of several microns in length, 100-500 nm in width and 10-20 nm in thickness. The morphology and structure of such material have been studied by SEM, HRTEM, Raman spectroscopy, XRD, XPS, TGA. In order to investigate the thermal stability of the pristine material, the as-prepared ribbons were annealed at various temperatures in the range 1000 °C to 2800 °C. The annealing treatments induced interesting structure changes in the samples, such as defect annihilation and loop formation at the edges, confirmed by HRTEM. A Raman spectroscopy study with many laser energies, enabled us to observe the overall behavior of the main Raman features (D, G, D', G', D+G bands). These phenomena will be discussed in detail.

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