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Effect of heat treatments on metallic drawn wires

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I will present the effect of wiredrawing on the mechanical and microstructural properties of industrial copper and aluminum wires. The regular orientation of the grains (texture) caused by external stresses during the cold wiredrawing process was observed. This texture causes a phenomenon of material consolidation. Unfortunately, the shaping by plastic deformation causes deterioration in mechanical and electrical properties of the material. To address this problem, we usually use annealing. Different heat treatments have been applied on these drawn wires, where the recrystallization reaction represented the main phenomenon during these heat treatments. Differential scanning calorimetry (DSC), X-ray diffraction, optical microscopy, transmission electron microscopy, scanning electron microscopy, micro-hardness measurements, tensile tests, and creep tests were used as techniques of characterization.

Biography

Boumerzoug Zakaria has completed his Ph.D. in 1998 from Constantine University, and was Professor in 2005. He was in Biskra University, the head of Mechanical Engineering Department (from 1998 to 2005) and Metallurgy Department (from 2005 to 2009). He has published more than 27 papers in reputed journals and is serving as an editorial board member.

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Covalent modification of graphene surface using photosensitive functional groupc

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Graphene (GR) has exceptional electronic, optical, mechanical and thermal properties, which provide it with great potential for use in electronic, optoelectronic and sensing applications. However, the gapless band structure greatly limits their wide applications in opto-electronic devices. Surface functionalization is found to be an effective method to tune the properties of graphene. The chemical functionalization of graphene has been investigated with a view to controlling its electronic properties and interactions with other materials. Covalent modification of graphene (CVD-GR and ME-GR) by photosensitive azobenzene (AZO) functional group has been used to achieve these goals. The GR-AZO hybrid exhibited a reversible photo isomerization property due to the covalent bonding of the AZO moieties. The AZO moieties bonding on graphene underwent a rapid trans-cis photo isomerization upon ultraviolet irradiation due to the electron interaction between AZO and graphene. The microstructure of GR-AZO hybrid was carefully characterized with Raman spectroscopy, atomic force microscopy (AFM), X-ray photoelectron spectroscopy (XPS), scanning electron microscopy (SEM), Fourier transformed infrared spectroscopy (FTIR) and UV-Vis absorption spectroscopy. Spectroscopic evidence affirmed the strong electronic interactions between the AZO and GR in this GR-AZO hybrid system. Effect of concentration of azobenzene diazonium salt and reaction time on the functionalization of graphene was also studied. Surface modified graphene was further used for the fabrication of 'light-gated' transistors.

Biography

Deepshikha has completed M.Sc. (Chemistry) from Guru Nanak Dev University, Amritsar in 2005. She is gold medalist in M.Sc. Chemistry. She has completed Ph.D. from Amity University, Noida in 2012. She has patent and several research publications in the international reputed journals. She has attended several national and international conferences with researchers in different areas of chemistry and nanotechnology. She has got five years research and eight years of teaching experience. At present, she is pursuing post doctorate in College of Chemistry and Molecular Engineering, Peking University, Beijing, China. Her specialization is on nano structured conducting polymers, graphene chemistry and application as FET.

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