

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Comparison anti-bacterial effect of silver/polystyrene nanocomposites on gram negative and positive bacteria AKHTAROLMOLOOK KAZEMI, Biochemical and Bioenvironmental Engineering Research Center, Sharif University of Technology, MARYAM RAFTARI, Department of physics and Astronomy, University of Sheffield, Sheffield, UK, SAJJAD TOLLABIMAZRAEHNO, Johannes Kepler University, Altenberger Str. 69, 4040 Linz, Austria, MOHAMMAD MAHDAVI, Department of Physics, Sharif University of Technology, AZAM IRAJIZAD, Institute for Nanoscience and nanotechnology, Sharif University of Technology — Silver nanoparticles/polystyrene nanocomposites were prepared via casting the solution of polystyrene in a mixture of carbon tetrachloride and acetone containing silver nanoparticles. Colloidal silver nanoparticles in acetone were synthesized by pulsed laser ablation (PLA) of pure bulk silver. Casting the colloidal silver nanoparticles in a solution of polystyrene results in a yellowish transparent polymeric sheet. TEM images show rather spherical nanoparticles with mean diameter of 5 nm. Ag/PS nanocomposites were characterized by UV-VIS spectroscopy. In this study, we also investigated the antimicrobial activity of silver nanocomposites against *Escherichia coli* (E.coli) and *Staphylococcus aureus* (S.aureus) as a model for Gram negative and Gram positive bacteria. Antibacterial tests were performed against E. coli and S.aureus, on LB agar plates containing different amount of nanoparticles. Our results showed at all these concentrations, the nanoparticles caused a growth delay of E. coli, increasing the concentration of nanoparticles increased this growth delay.

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Date submitted: 12 Nov 2011

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