

# ICOSECS 8

University of Belgrade  
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8<sup>th</sup> International Conference  
of the Chemical Societies  
of the South-East European Countries

# BOOK OF ABSTRACTS

organized by

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UCB - Union of Chemists in Bulgaria  
PUC - Pancyprian Union of Chemists  
AGC - Association of Greek Chemists

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## A simple two-phase route to polyaniline/gold nanocomposites

Una Bogdanović, Vesna Vodnik, Ivana Vukoje, Jasna Džunuzović\*,

Milovan Stojilković, Jovan Nedeljković

*Vinča Institute of Nuclear Sciences, University of Belgrade,*

*P. O. Box 522, 11001 Belgrade*

*Institute of Chemistry, Technology and Metallurgy (ICTM) – Center of Chemistry,*

*University of Belgrade, Studentski trg 12-16, 11000 Belgrade*

Combining the electrical, optical, and magnetic properties of polyaniline (PANI) with excellent chemical and physical properties of gold nanoparticles (Au NPs) is an efficient way to create novel functional nanomaterials with potential applications in biosensing and therapy, energy conversion and storage. In the present work, we report polyaniline/gold nanocomposite (PANI/Au) obtained by two-phase, water/toluene, interfacial chemical reaction. The polymerization process occurs at the interface of the organic phase (with aniline) and acidic water solution (with oxidant and Au NPs). Using this strategy, secondary growth of PANI could be suppressed. Transmission and scanning electron microscopy measurements were confirmed that PANI was formed as nanofibers decorated with 17 nm Au NPs. Characterization of the samples performed with UV-Vis and FTIR spectroscopy and XRD technique are used for description of the optical properties, interaction between components and structure of PANI/Au system. The obtained results indicate that the present synthetic route produces the PANI in conductive form (doped emeraldine salt form) with specific electric behavior, which makes PANI/Au nanocomposite suitable material for a wide range of applications.