

АКАДЕМИЈА НАУКА
И УМЈЕТНОСТИ
РЕПУБЛИКЕ СРПСКЕ

ACADEMY OF SCIENCES
AND ARTS OF THE
REPUBLIC OF SRPSKA



**ШЕСТИ МЕЂУНАРОДНИ НАУЧНИ СКУП
САВРЕМЕНИ МАТЕРИЈАЛИ 2013**

ПРОГРАМ РАДА

**SIXTH INTERNATIONAL SCIENTIFIC CONFERENCE
CONTEMPORARY MATERIALS 2013**

PROGRAMME

Бања Лука, 4–6. јула 2013. године
Banja Luka, July 4 to 6, 2013

ORGANIZER OF THE CONFERENCE

Academy of Sciences and Arts of the Republic of Srpska

UNDER THE PATRONAGE OF

Ministry of Science and Technology of Republic of Srpska

THE CONFERENCE HAS BEEN SUPPORTED BY

*The Republic of Srpska Medical Association
University Clinical Center Banja Luka*

ORGANIZING COMMITTEE

Academician Rajko Kuzmanović, president
Academician Dragoljub Mirjanić, vice-president
Academician Vaskrsija Janjić
Academician Branko Škundrić
Prof. Simo Jokanović, Ph. D.
Prof. Zoran Rajilić, Ph. D.
Prof. Momčilo Biuković, Ph. D.
MSc Vinko Bogdan
Prof. Siniša Vučenović, Ph. D.

SCIENTIFIC COMMITTEE

Academician Dragoljub Mirjanić

Academician Branko Škundrić

Academician Jovan Šetrajčić

Academician Stane Pejovnik (Slovenia)

Prof. Pantelija Dakić, corresponding member of ASARS

Prof. dr Neđo Đurić, corresponding member of ASARS

Academician Tomislav Pavlović

Academician Rostislav Andrievski (Russia)

Academician Filip Govorov (Ukraine)

Academician Gerald Pollak (USA)

Prof. Roumiana Tsenkova, Ph. D. (Japan)

Prof. Mae Wan Ho, Ph. D. (Great Britain)

Prof. Aoife Gowen (Ireland)

Prof. Yukio Kosugi, Ph. D. (Japan)

Mayron D. Evans Ph. D. (Canada)

Prof. Martin Chaplin Ph. D. (Great Britain)

Prof. Đuro Koruga Ph. D. (Serbia)

Prof. Dragica Lazić, Ph. D.

Prof. Pero Dugić, Ph. D.

Prof. Slobodan Čupiće, Ph. D.

The scientific conference will take place in the Great hall of ASARS.

SILVER NANOPARTICLES WITHIN FUNCTIONALIZED HYDROGELS FOR PLASMONIC BIO(CHEMICAL) SENSORS

F. Radovanović¹, T. Tomković², A. Nastasović², Z. Jakšić¹

¹ IHTM – Centre of Microelectronic Technologies and Single Crystals, Serbia

² IHTM – Centre of Microelectronic Technologies and Single Crystals,
Division for Chemistry, Serbia

Plasmonics is the basis for a novel generation of adsorption-based ultra-sensitive (bio) chemical sensors. In nanoplasmonic sensors one utilizes nanocomposites typically in the form of thin films, comprising metal nanoparticles or ordered metal-dielectrics (plasmonic crystals). In this work we investigated thin functionalized hydrogel films with embedded silver nanoparticles. These films were prepared by copolymerizing glycidyl methacrylate with mono and multi-functional methacrylates using UV irradiation. The epoxy group in glycidyl methacrylate can then be converted by chemical means into a desired functionality to capture the targeted analyte. Silver nanoparticles were either photochemically generated in situ, or were introduced into hydrogels by chemical reduction. Differences in morphology and performance of these nanocomposites were investigated and will be discussed

Keywords: plasmon, sensor, hydrogel, silver, nanoparticle.

EQUILIBRIUM MODE DISTRIBUTION IN W-TYPE GLASS OPTICAL FIBERS

S. Savovic¹, A. Simovic¹, A. Djordjevich²

¹ Faculty of Natural Sciences and Mathematics, Serbia

² City University of Hong Kong, China

Power flow equation is used to calculate equilibrium mode distribution in W-type glass optical fibers. It has been shown how the coupling length for achieving the equilibrium mode distribution in W-type glass optical fibers varies with the depth and width of the intermediate layer and coupling strength for different widths of launch beam distribution. W-type optical fibers have shown effectiveness in reducing modal dispersion and bending loss.

Keywords: W-type glass optical fiber, mode coupling.