

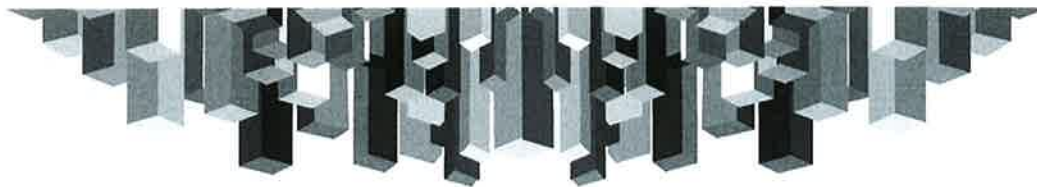
Using dual polarization silicon ring resonators to monitor pH-induced conformational changes in BSA molecules

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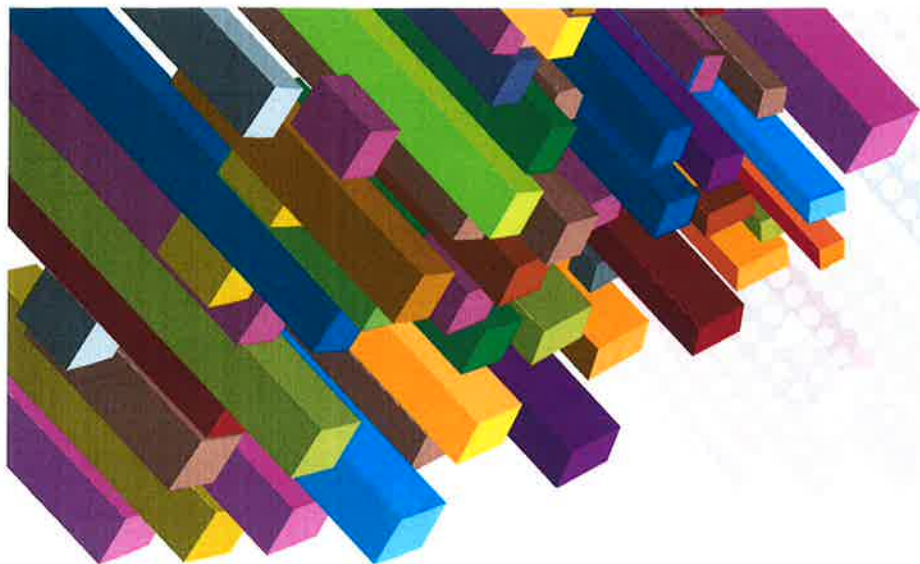
We present the use of dual polarization silicon ring resonators to monitor conformational changes in biomolecules. By performing simultaneous measurements with both TE and TM polarization, we are able to disentangle the influence of the refractive index and the thickness of the layer adsorbed to the ring resonator biosensor. Both the coupling section and the ring resonator are designed specifically to support two polarizations, by carefully tuning waveguide widths. As a proof of principle, we show how we can detect changes in shape of adsorbed BSA molecules under the influence of pH changes in buffer. This technique offers potential for high-content high-throughput drug screening studies.

FINAL PROGRAM
THURSDAY



THURSDAY 12 SEPTEMBER 2013 / PM2			
Symposium	F1II	F2I	F3I
Room	Andalucía 5	Sevilla 3	La Pinta
Session Title	Bioinspired and Functional Materials for Tissue Engineering II	Measurement of biological / bioinspired materials	Silicon photonics biosensors
Chairperson	J. Mano	Ingrid Weiss	Laura M. Lechuga
17:30	<p><i>HIGHLIGHT</i></p> <p>BIOINSPIRED SUPERHYDROPHOBIC PATTERNED CHIPS FOR THE COMBINATORIAL BIOMATERIALS DESIGN IN TISSUE ENGINEERING</p> <p>João F. Mano (ICVS/3B's - PT Government Associate Laboratory, Braga/Guimarães, Portugal) Mariana B. Oliveira</p>	<p><i>INVITED / KEYNOTE</i></p> <p>MULTI-METHOD IMAGING AND QUANTIFICATION OF MATERIAL PROPERTIES DURING BONE MINERALIZATION AND HEALING</p> <p>Wolfgang Wagermaier (Max Planck Institute of Colloids and Interfaces, Department of Biomaterials, Potsdam, Germany) Michael Kerschnitzki, Rebecca Hoerth, Philip Kollmannsberger, Daniel Baum, Hans-Christian Hege, Bettina Willie, Georg N. Duda, Richard Weinkamer, Peter Fratzl</p>	<p><i>HIGHLIGHT</i></p> <p>INTEGRATED OR SELF-PROPELLED (BIO)SENSORS: LAB-IN-A-TUBE OR NANOMOTORS</p> <p>Samuel Sánchez (Institute for Integrative Nano-sciences, IFW Dresden)</p>
17:50	EMPTY SLOT		<p><i>ORAL</i></p> <p>POROUS SILICON FOR THE CONSTRUCTION OF BIOSENSORS AND FOR BIOMEDICAL APPLICATIONS</p> <p>Frederique Cunin (Icgm - Umr5253)</p>
18:10	<p><i>ORAL</i></p> <p>APATITE COATINGS ON MCM-41 NANOSPHERES</p> <p>Antonio J. Salinas (Universidad Complutense de Madrid and CIBER-BBN) Okun Mersinlioglu, Blanca González, María Vallet-Regí</p>	<p><i>ORAL</i></p> <p>SPIDER SILK PROTEINS STUDIED BY SAS AND CD</p> <p>Imke Greving (Helmholtz Gesellschaft Geesthacht, Germany) Ann Terry, Boulet-Audet Maxime, Grillo Isabelle, Vollrath Fritz, Dicko Cedric</p>	<p><i>HIGHLIGHT</i></p> <p>HIGH-PLEX AUTO-ANTIBODY DIAGNOSTICS USING SILICON PHOTONICS RING RESONATORS</p> <p>Cary Gunn (Genalyte Inc.)</p>
18:30	<p><i>ORAL</i></p> <p>MIMICKING TRABECULAR BONE TISSUE WITH HYDROXYAPATITE/GELATIN ROBOCASTED SCAFFOLDS</p> <p>Yassine Maazouz (Biomaterials, Biomechanics and Tissue Engineering Group) Edgar Montufar, María-Pau Ginebra</p>	<p><i>ORAL</i></p> <p>SEMI-QUANTITATIVE CONTACT-FREE ASSESSMENT OF THE BIOMECHANICS OF TISSUE-LIKE MULTICELLULAR AGGREGATES</p> <p>Andreas Undisz (Friedrich Schiller University) Markus Rettenmayr</p>	<p><i>ORAL</i></p> <p>CHARACTERIZATION OF THE PERFORMANCE OF OPTICAL LABEL-FREE BIOSENSORS.</p> <p>Rafael Casquel (ETSII-Universidad Politécnica de Madrid) Álvaro Lavín, Francisco Javier Sanza, María Fé Laguna, Ana López, Miguel Holgado</p>
18:50	<p><i>ORAL</i></p> <p>BIOACTIVE GLASS COATINGS DEPOSITED VIA HVFS FOR ORTHOPAEDIC APPLICATIONS</p> <p>Valeria Cannillo (University of Modena and Reggio Emilia) D. Bellucci, G. Bolelli, R. Gadow, A. Killinger, L. Lusvarghi, P. Mueller, A. Sola, N. Stiegler</p>	<p><i>ORAL</i></p> <p>MESOPOROUS SILICA STRUCTURE IN THE CENTRAL FILAMENT OF AN ANCHOR SPICULE OF THE MARINE SPONGE MONORHAPHIS CHUNI</p> <p>Igor Zlotnikov (Department of Biomaterials, Max Planck Institute of Colloids and Interfaces, Potsdam, Germany) Peter Werner, Horst Blumtritt, Yannicke Dauphin, Emil Zolotoyabko, Peter Fratzl</p>	<p><i>HIGHLIGHT</i></p> <p>RECENT ADVANCES IN SILICON WIRE BIOSENSOR ARRAYS</p> <p>Pavel Cheben (National Research Council of Canada)</p>
19:10	<p><i>ORAL</i></p> <p>3D MODELING OF BIOMIMETIC AL/AL₂O₃ NANOPOROUS COATINGS FOR BONE IMPLANT APPLICATIONS</p> <p>Marina Martínez Mirón (Leibniz Institut for New Materials)</p>	<p><i>ORAL</i></p> <p>ADVANCES IN THE CHARACTERIZATION OF BIOLOGICAL MATERIALS WITH SINGLE, MULTICHANNEL AND MULTI-DETECTOR EDS SYSTEMS</p> <p>Jana Berlin (Bruker Nano GmbH) Anton T. Kearsley, Gavin R. Broad, Tobias Salge, Ralf Terborg, Birgit Hansen, Andi Käppel, Meiken Falke</p>	<p><i>19:10 ORAL</i></p> <p>MULTIPLYED MACH-ZEHNDER SILICON INTERFEROMETERS FOR HIGHLY SENSITIVE BIOSENSING</p> <p>Daphné Duval (CIN2 (CSIC and CIBER BBN)) Daniel Grajales, Stefania Dante, Carlos Dominguez, Laura M. Lechuga</p>
			<p><i>19:30 ORAL</i></p> <p>USING DUAL POLARIZATION SILICON RING RESONATORS TO MONITOR PH-INDUCED CONFORMATIONAL CHANGES IN BSA MOLECULES</p> <p>Peter Bienstman (UGent) Tom Claes, Jan-Willem Hoste</p>





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