

2022 AFOSR/NSF Technical Exchange on Biophysics and Nanomanufacturing

Dr. Sofi Bin-Salamon | September 15-16, 2022 | Washington, DC

**School of Advanced International Studies
Johns Hopkins University
1740 Massachusetts Avenue, NW
Washington, DC 20036**

Day 1: Thursday, 15 September 2022

Introduction

0915-0930	Welcome Remarks	Dr. Sofi Bin-Salamon Program Manager Air Force Office of Scientific Research Dr. Khershed Cooper Program Director National Science Foundation
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Research Challenges

0930-0950	Extracellular matrix analogues for embedding fluorescent nanodiamonds	Prof. Luigi Ambrosio Institute of Polymers, Composites, and Biomaterials National Research Council of Italy
0950-1010	Barriers in sensing brain cells: lessons from 2D and 3D system	Dr. Valentina Benfenati Institute for Organic Synthesis and Photoreactivity National Research Council of Italy Dr. Andrea Candini Institute for Organic Synthesis and Photoreactivity National Research Council of Italy
1010-1030	Smart nanomaterials to investigate electrical activity of excitable cells	Dr. Annalisa Convertino Institute of Microelectronics and Microsystems National Research Council of Italy
1030-1050	Nanodiamonds Living Systems Interface: Measure, Sense and Operate: Challenges	Dr. Roberto Zamboni Institute for Organic Synthesis and Photoreactivity National Research Council of Italy
1050-1110	BREAK	
1110-1130	Nano-manufacturing of Diamond Crystals Containing Nitrogen-Vacancy Centers for Quantum Electronics and Biosensing	Prof. Raj N. Singh Department of Materials Science and Engineering Oklahoma State University

1130-1150	New strategies for synthesis and characterization of doped nanodiamonds	Prof. Mohan Sankaran Department of Nuclear, Plasma and Radiological Engineering University of Illinois-Urbana Champaign
1150-1230	Confined laser shock detonation for NV nanodiamonds manufacturing: challenges	Prof. Qiong Nian Department of Engineering of Matter, Transport and Energy Arizona State University Prof. Yiliang (Leon) Liao Department of Industrial & Manufacturing Systems Engineering Iowa State University
1230-1330	LUNCH	
1330-1350	Fluorescent nanodiamond for quantum imaging: challenges	Prof. Andrew Greentree ARC Centre of Excellence for NanoBiophotonics Royal Melbourne Institute of Technology University
1350-1410	Quantum sensors of mitochondrial metabolism: Challenges and opportunities	Prof. Peter Burke Department of Electrical Engineering and Computer Science University of California, Irvine
1410-1430	Engineering nanodiamonds for superior sensing performance and future scalability	Prof. Philip Hemmer Department of Electrical and Computer Engineering Texas A&M University
1430-1450	Engineering point defect distribution and surface reconstructions at non-equilibrium conditions	Prof. Peter Pauzauskie Department of Materials Science and Engineering Washington University
1450-1510	BREAK	
1510-1530	Light-modulation of biological/semiconductor interfaces for affecting cell growth and artificial retina development	Prof. Thomas Brown Centre for Hybrid and Organic Solar Energy University of Rome, Tor Vergata
1530-1550	Assembling and characterization of carbon nano-composites	Dr. Vincenzo Palermo Institute for Organic Synthesis and Photoreactivity National Research Council of Italy
1550-1610	Avenues for International Collaboration	Mr. Giulio Busulini Institute for Organic Synthesis and Photoreactivity National Research Council of Italy
1610-1630	Smart sensing non-classical biology	Dr. Larry Nagahara Whiting School of Engineering Johns Hopkins University

1630-1730	Closing Discussion
1730	MEETING ADJOURNED

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Day 2: Friday, 16 September 2022

Scientific Opportunities

0915-1015	Opportunities in Biophysics	
1015-1045	BREAK	
1045-1145	Opportunities in Nanomanufacturing	
1145-1200	Closing Remarks	Dr. Sofi Bin-Salamon Program Manager Air Force Office of Scientific Research Dr. Khershed Cooper Program Director National Science Foundation
1200	CONCLUSION	