

Nano-tools for Biotech Research at the Center for Functional Nanomaterials

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ABSTRACT

The Center for Functional Nanomaterials at BNL is a user focused DOE nanoscience facility. Within the large palette of available facilities and techniques, biotech focused researchers will find use of advanced confocal techniques, some with single molecule/protein detection sensitivity, and transmission electron microscopy adapted for soft bio nano materials. Our structural characterizations also include laboratory- and synchrotron-based X-ray methods (SAXS, WAXS) that allow probing structure of polymers, biomolecules and nanoparticles in solutions and under relevant environmental conditions. We developed a range of methods for the functionalization of nanoparticles with DNA and other biomolecules, and used these systems for bio-sensing and optical applications. This presentation will highlight the top of the art instruments and techniques available at CFN for biotech researchers and examples of successes from our past and current bio oriented users.

BIOGRAPHY

Mircea Cotlet is a Materials Scientist in the Soft Biological Nanomaterials team at the Center for Functional Nanomaterials at Brookhaven National Laboratory and an Adjunct Professor in the Materials Science and Engineering Department at Stony Brook University. Dr. Cotlet's research focuses on time-resolved single molecule optical studies of hybrid nanomaterials applicable to optoelectronics and biosensing. He has co-authored over 65 peer-reviewed papers in the field of single molecule spectroscopy (Google Scholar h-impact factor 36), 2 patent disclosure applications and presented over 30 invited talks. He is a member of the editorial board of the Journal of Spectroscopy.