

# METAL-ENHANCED FLUORESCENCE: APPLICATION TO HIGH-THROUGHPUT SCREENING AND DRUG DISCOVERY

KADIR ASLAN,<sup>1</sup> IGNACY GRZYNSKI,<sup>2</sup> JOANNA MALICKA,<sup>2</sup>  
JOSEPH R. LAKOWICZ,<sup>2</sup> AND CHRIS D. GEDDES<sup>1,2</sup>

<sup>1</sup>*Institute of Fluorescence, University of Maryland Biotechnology Institute  
Baltimore, Maryland*

<sup>2</sup>*Center for Fluorescence Spectroscopy, University of Maryland School of Medicine  
Baltimore, Maryland*

- 1 METAL-FLUOROPHORE INTERACTIONS
- 2 METAL SUBSTRATES FOR METAL-ENHANCED FLUORESCENCE
  - Silver Island Films for MEF
  - Silver Colloid Films for MEF
  - Anisotropic Silver Nanostructures for MEF
  - Laser-Deposited Silver for MEF
  - Electrochemically Deposited Silver for MEF
  - Electroplating of Silver for MEF
  - Roughened Silver Electrodes for MEF
  - Silver Fractal-Like Structures on Glass Substrates for MEF
- 3 METAL-ENHANCED FLUORESCENCE SENSING:  
APPLICATION TO SENSING IN PLATE WELLS
  - Enhanced DNA/RNA Detection Using MEF (Hybridization Assays)
  - Enhanced DNA Labels
  - Over-labeled Proteins as Ultrabright Probes
  - Enhanced and Selective Excitation Using Multiphoton Excitation  
and Metallic Nanoparticles
  - Enhanced Energy Transfer on Silver Surfaces