



**Ινστιτούτο Θεωρητικής και Φυσικής Χημείας
Εθνικό Ίδρυμα Ερευνών**

Βασ. Κωνσταντίνου 48, Αθήνα

ΔΙΑΛΕΞΗ

**“Polymer Composite Thermal Neutron Scintillator for Radiation
Portal Monitors and Neutron Imaging”**

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Τρίτη 13 Μαΐου 2014, ώρα 12:00

Αίθουσα σεμιναρίων στο ισόγειο του ΕΙΕ

Polymer Composite Thermal Neutron Scintillator for Radiation Portal Monitors and Neutron Imaging

Indraneel Sen

Thermal neutron detectors are used for medical imaging, nuclear plant safety, homeland, and border security and for well logging in geology. Currently pressurized gas counters filled with ^3He are used (state of art) for thermal neutron detection. Due to the imminent shortage of ^3He , a replacement technology for thermal neutron detection is required.

It is desired that the ^3He replacement technologies for thermal neutron detection are robust systems that efficiently detect neutrons, demonstrate gamma to neutron discrimination properties as demanded by US Department of Homeland Security and can be easily and economically manufactured in large scales.

The lecture will cover all materials design and characterization aspects of successfully developing a polymer composite thermal neutron detector that satisfies DHS criteria. Scopes in further research and challenges in device fabrication will also be discussed. The lecture topic involves polymer science and processing technology, neutron and radiation sciences as well as optical sciences.