**ΑΝΑΚΟΙΝΩΣΗ – ΣΕΙΡΑ ΔΙΑΛΕΞΕΩΝ**

Στο πλαίσιο του προγράμματος **Erasmus+** (Erasmus Staff Mobility for Teaching) ο καθηγητής **Lucel Sirghi** από το Τμήμα Φυσικής του Πανεπιστημίου Alexandru Ioan Cuza του Ιασίου θα επισκεφθεί το Πανεπιστήμιό μας και θα δώσει σειρά τεσσάρων διαλέξεων με θέμα “**Plasma Material Processing**” και “**Atomic Force Microscopy Techniques**”.

Το πρόγραμμα των διαλέξεων, οι οποίες θα πραγματοποιηθούν στην αίθουσα Φ2 του Τμήματος Φυσικής είναι:

#### Erasmus Staff Mobility for Teaching

**Prof. Lucel Sirghi Faculty of Physics**

**Alexandru Ioan Cuza University of Iasi**

Plasma Material Processing

Plasma material processing is a well-established field of science and technology. In the recent years, many wet chemistry techniques used for material processing were replaced with more ecologic plasma material processing techniques. This course will introduce basic knowledge of plasma properties, plasma sources and plasma material processing techniques illustrated with some of interesting research results obtained by the lecturer.

Atomic Force Microscopy Techniques

Atomic Force Microscopy is more than 30 years old microscopy technique that started with scanning tunnelling microscopy for getting microscopic 3D images with atomic resolution of conductive surfaces and developed continuously with new techniques. This course will introduce and give practical information on the use of these AFM techniques and is based on the experience and expertise acquired by the lecturer in more than 20 years of research activity.

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| ***Lecture 1***  **Monday 23/05/22,**  **17.00-19.00,**  **Hall Φ2:** | Plasma definition and parameters. Low-pressure and atmospheric plasma sources. Plasma techniques for thin film deposition. Magnetron sputtering in direct current, radio frequency and high power impulse discharges. Reactive magnetron sputtering deposition for metallic compounds. Plasma synthesis of nanomaterials. |
| ***Lecture 2***  **Tuesday 24/05/22,**  **11.00-13.00,**  **Hall Φ2:** | Phenomena at plasma-solid interface. Plasma cleaning, chemical activation and decontamination of surfaces. SAM deposition of molecular films on plasma activated surfaces. Plasma treatment of polymer surfaces. Plasma biodecontamination. |
| ***Lecture 3***  **Wednesday 25/05/22,**  **11.00-13.00:**  **Hall Φ2:** | Short history of microscopy techniques. The atomic force microscope: principle, piezoelectric scanners, atomic force sensor, controlling electronics, system integration. Acquisition of 3D AFM in contact mode. Friction force microscopy and nanotribology. Intermittent-contact and non-contact modes. Phase-lag images. AFM probe characteristics and force measurements. AFM image analysis and processing. |
| ***Lecture 4***  **Thursday 26/05/22,**  **11.00-13.00,**  **Hall Φ2:** | Atomic force versus displacement curve acquisition and processing. Capillary force. AFM measurements in liquid. Chemical functionalization of the AFM probes. Atomic force spectroscopy investigation of biomolecules. Atomic force microscopy indentation. Other atomic force microscopy techniques. |