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Joint ICTP-IAEA Workshop on Physics of Radiation Effect and its Simulation for Non-Metallic Condensed Matter | (smr 2359)

Tuesday 14 August 2012

Theory of the Ion Beam Induced Charge Technique (IBIC) - Adriatico Guest House Kastler Lecture Hall (11:00-12:30)

The acronym IBIC (ion beam induced charge) indicates a scanning microscopy technique which uses MeV ion beams as probes to image the basic electronic properties of semiconductors and to provide exhaustive information on charge transport phenomena occurring in devices, not easily obtainable by other analytical techniques.

IBIC is based on the measurement of the charge induced in a given electrode by the motion of charge carriers generated by MeV ions. As such, the modelling of induced charge pulse formation requires a theoretical background involving electrostatics, semiconductor physics and ion-solid interaction

This lecture intends to provide the principles of the IBIC technique starting from basic theorems of electrostatics and using the concepts presented in previous lectures.

The basic mathematical tools for a correct interpretation of the experimental data will be presented and applied to benchmark experiments to highlight the potential of the techniques.

time	title	presenter
11:00	Theory of the Ion Beam Induced Charge Technique (IBIC)	ETTORE VITTONI