



# Table of contents

Wednesday 15 August 2012 .....	1
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# Joint ICTP-IAEA Workshop on Physics of Radiation Effect and its Simulation for Non-Metallic Condensed Matter | (smr 2359)

## Wednesday 15 August 2012

**Defect characterization by positron annihilation spectroscopy - Adriatico Guest House  
Kastler Lecture Hall (11:00-12:30)**

*The methods and principles of vacancy type point defect characterization by positron annihilation spectroscopy (PAS) are described. The basic processes related to fast positron thermalization in material are followed. Positron sources and the set requirements for them are discussed. The variations of PAS are introduced including positron life-time spectroscopy and techniques based on measurement of the 511 keV annihilation line energy spectrum. The discussed methods based on the momentum distribution include Doppler broadening and angular correlation of the annihilation quanta. The information that can be extracted by the various techniques is pointed out. Finally, the slow positron beam technique is introduced including positron moderation as well as the capabilities of this approach. The facility constructed at Helsinki University enabling point defect production by proton irradiation and in situ positron spectroscopy at low temperatures is described. Examples of studies conducted employing the facility and typical PAS studies published in the literature are shown.*

time	title	presenter
11:00	Defect characterization by positron annihilation spectroscopy	JYRKI RAISANEN