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Defect Measurements by X-ray Luminescence JIANFENG JI, Washington State University, FARIDA SELIM, Bowling Green State University, MATERIAL RESEARCH TEAM — In photoluminescence spectroscopy, identification of emission lines in luminescence materials depends on prior knowledge of excitation bands and it is very difficult to determine all luminescence centers in a sample. A new luminescence spectroscopy method that uses x-ray for excitation and records emission from 200 to 800 nm was developed. It can reveal all luminescence centers in a sample in one simple measurement. Moreover it provides a very powerful tool to study defects in luminescent materials. Measurements were performed on a number of insulating and semiconducting oxides such as ZnO and revealed all luminescence defects in the sample. An overview about the spectrometer and its use in defect studies in some important electronic and photonic materials will be presented.
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