The Combination of Electron Microscopy and Raman Microscopy
- Examples of Application

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Introduction

Since FELMI-ZFE, Graz, has a long lasting experience concerning different methods, the institute consistently opens new fields of expertise. As a new method, the system RISE (Raman Imaging and Scanning Electron microscopy) was recently established. RISE offers the possibility of high resolution imaging by the scanning electron microscope Zeiss Sigma 300 VP (Oberkochen, Germany) and chemical analysis with the attached Raman microscope from WITec (Ulm, Germany).

RISE - Raman Imaging and Scanning Electron microscopy

The Raman investigation is achieved by consecutive measurements enabled by the specimen stage movement (semi-automatically) between the SEM and the Raman measurement position in the specimen chamber. Thus chemical mapping (Raman) can be combined with high resolution SEM images.

Application samples

Fig. 2: Left: Correlative Raman-SEM image of different polymeric layers of a peel film; Right: Raman spectra and component identification [1,2]

Fig. 3: Left: Correlative Raman-SEM image of Paper Coffee Cup; Right: Raman spectra and component identification [4]

Fig. 4: Left: Correlative Raman-SEM image of WO3/WS2 Powder (Cut): WS2 blue; WO3 red; Right: EDX Map: oxygen (green), sulfide (light blue) [4]

References/ Literature


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