

# Dr. RAMUNAS SKAUDZIUS

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## **Seminar: “Synthesis and investigation of lanthanide doped garnets and phosphates”**

It will be a brief introduction about Vilnius University and Sol-Gel Group. The main lecture topic covers synthesis and investigation of europium or cerium doped garnets and phosphates. It will be discussed sol-gel and hydrothermal synthesis of the samples. The results of X-Ray diffraction (XRD), SEM, luminescence properties will be presented in detail.

## **Practical lecture: “Brief introduction to Rietveld analysis by using Match! And FullProf”**

In the first seminar it will be shortly reminded the theory and principles of X-Ray diffraction and its history. The focus of the seminar is introduction to Le Bail fitting and Rietveld analysis by Match! and FullProf software.

The participants of the seminar required to use their own PC. The software Match! (<https://www.crystalimpact.com/match/download.htm>) and FullProf (<https://www.ill.eu/sites/fullprof/php/downloads.html>) should be installed in advanced.

In the seminar it will be presented step by step how to start XRD analysis by determining the background, finding/adding/removing peaks, application of DICVOL method or to start Rietveld refinement by using information of the open crystal data powder diffraction card.

## **Practical lecture: “Data interpretation and visualization after Rietveld analysis”**

In the second seminar it will be presented the methods to study the structure of materials: qualitative and quantitative phase analysis, determination of the size of crystallites, the visualization of crystal structure refined by Rietveld method.

The participants of the seminar required to use their own PC. The software VESTA (<https://jip-minerals.org/vesta/en/download.html>) should be installed in advanced.