

**Graz Advanced School of Science**  
PHYSICS COLLOQUIUM OF THE UNIVERSITY OF GRAZ AND  
THE GRAZ UNIVERSITY OF TECHNOLOGY

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**Structure and dynamics at surfaces using EPR spectroscopy:  
from single crystals to adsorbed proteins**

**Abstract:**

Surfaces and their interaction with the surrounding environment play a pivotal role in a large variety of areas ranging from heterogeneous catalysis, film coatings all the way to biological systems. Gaining insight into these systems at the atomic level is one of the key goals of today's research, however, this is still challenging for most of these complex systems. Exploring well-defined model systems provides one strategy towards this goal. Even though EPR spectroscopy has only scarcely been used to study well defined surfaces it is a valuable technique to study structural, electronic as well as dynamic aspects of the systems at hand.

Within this talk examples for the information that can be gathered by EPR spectroscopy applied to surfaces will be illustrated using well-defined epitaxial oxide films grown on metal single crystal surfaces as examples. In particular, defects and their role for the chemical and physical properties of these surfaces will be discussed in some detail. The technique is not limited to surfaces of hard condensed matter, but could equally be applied to soft matter surfaces/interfaces. Examples exploring the ability of EPR spectroscopy to study the structure and dynamics of spin-labeled proteins will be discussed.

**Date:** Tuesday, November 26, 2019, 17:00  
**Location:** Lecture Hall 05.01, Institute of Physics, University of Graz, Universitaetsplatz 5  
16:30 meet the speaker tea, Library of Experimental Physics,  
Institute of Physics, Universitaetsplatz 5, 1<sup>st</sup> floor, room 122  
**Host:** Prof. M. Sterrer – Institute of Physics – Surface Science