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Surfaces of complex materials: New opportunities offered by noncontact AFM

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Abstract:

Novel technologies bring increasingly complex requirements on the physical and chemical properties of used materials. In accordance, increasingly complex materials are under development and stronger analytical techniques are needed. In this colloquium, I would like to present the advantages of noncontact atomic force microscopy for investigating the surfaces of nontrivial materials, specifically focusing on metal oxides.

The concepts of superior spatial and chemical resolution will be demonstrated on binary oxides, such as In_2O_3 or TiO_2. Ternary oxides, such as perovskites $SrTiO_3$ and $KTaO_3$, will be used for illustrating the opportunities in surface chemistry. Finally, insulating oxides like Fe_2O_3 will be used for studying kinetics of polarons (electric charges trapped in the crystal lattice).

All interested are welcome ☺