

EES Catalysis

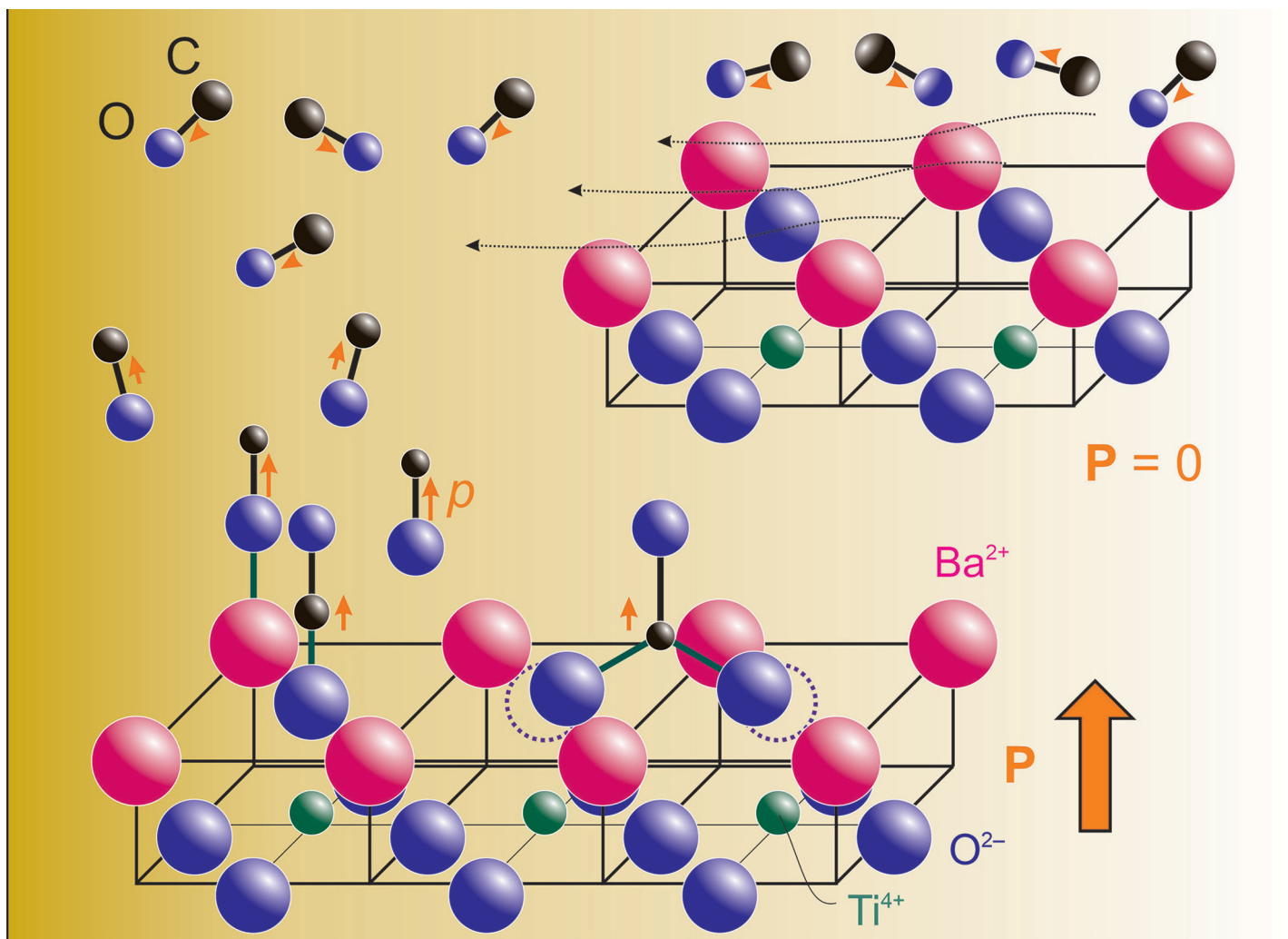
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Fundamental questions
Elemental answers

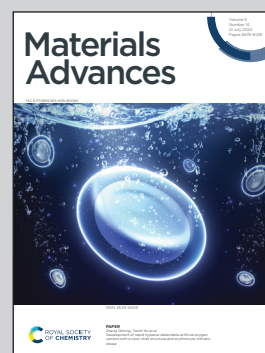


Showcasing research from Dr Cristian M. Teodorescu's laboratory, Surfaces and Interfaces, National Institute of Materials Physics, Măgurele, Romania.

Molecular adsorption-desorption of carbon monoxide on ferroelectric BaTiO₃(001)

Carbon monoxide is adsorbed in molecular form on (001) oriented, atomically clean barium titanate, and is desorbed when the substrate is heated above the Curie temperature. This suggests that the adsorption process is governed by the ferroelectricity of the substrate. The electric field provided by barium titanate polarizes the carbon monoxide molecule and attaches it to the surface. Derived adsorption energies are in line with this assumption. The adsorption geometry is dependent on the substrate temperature. Upon repeated adsorption/desorption cycles, the substrate stoichiometry and structure remain unchanged.

As featured in:



See Cristian M. Teodorescu *et al.*, *Mater. Adv.*, 2024, 5, 5709.