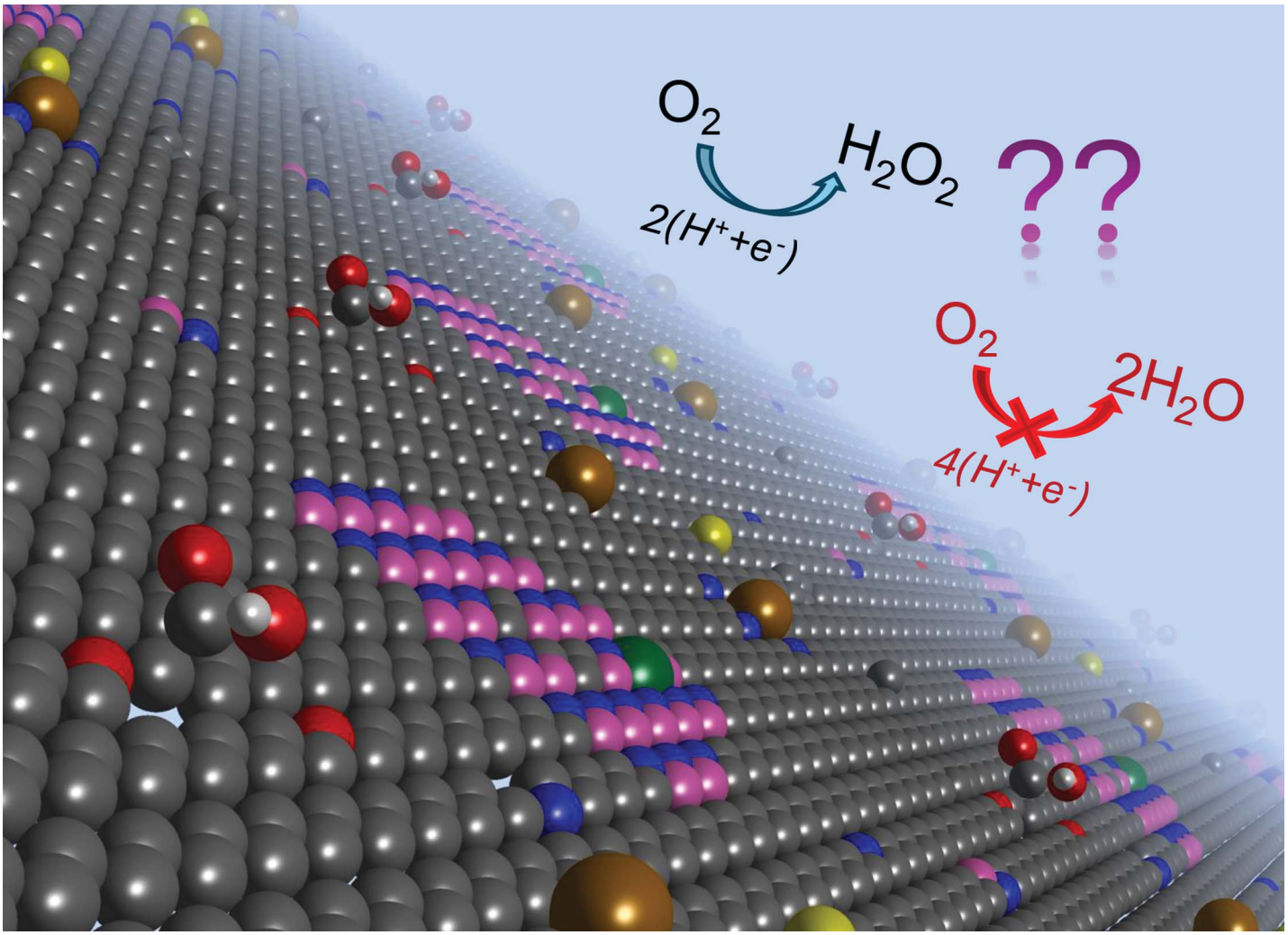

Showcasing research from Professor Samira Siahrostami's laboratory, Department of Chemistry, Simon Fraser University, British Columbia, Canada.

Selectivity trends in two-electron oxygen reduction: insights from two-dimensional materials

This work explores selectivity trends in the two-electron oxygen reduction reaction (2e-ORR) across a broad set of two-dimensional (2D) materials. By systematically analysing active sites and employing the descriptor ΔΔG, the study reveals how structural and electronic features govern selectivity toward hydrogen peroxide production. The findings highlight that not all catalytically active sites exhibit high selectivity, underscoring the importance of distinguishing activity from product preference. These insights provide valuable design principles for identifying and engineering 2D catalysts optimized for efficient 2e-ORR.

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See Samira Siahrostami, *Chem. Sci.*, 2025, **16**, 15926.

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