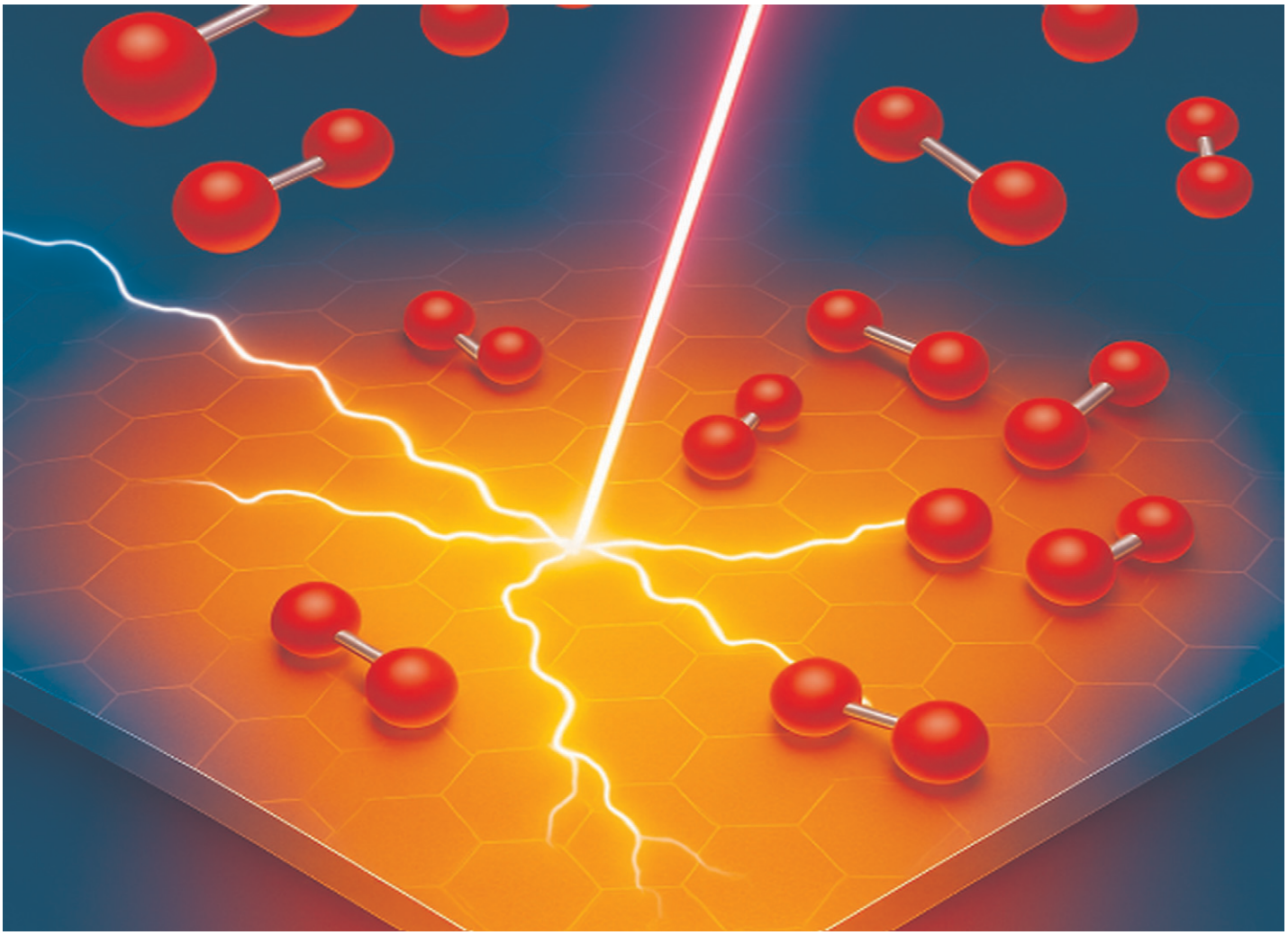

Showcasing joint research between LMGP (CNRS – Grenoble INP – UGA, Grenoble, France) and INMA (CSIC – Univ. Zaragoza, Zaragoza, Spain).

Laser annealing of transparent ZnO thin films: a route to improve electrical conductivity and oxygen sensing capabilities

Shining light to unlock functionality: we show how ultra-short-pulse laser beam scanning (LBS) transforms ZnO thin films grown by spatial atomic layer deposition (SALD). This high-throughput, low-temperature method enables scalable fabrication on large, fragile substrates, while laser annealing fine-tunes their electrical performance. By carefully optimizing pulse energy and spacing, we achieve films with drastically reduced resistivity and remarkable oxygen sensitivity. This versatile light-driven approach opens new pathways for transparent electronics and gas-sensing devices, positioning laser processing as a powerful tool for next-generation interfaces.

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See L. A. Angurel, D. Muñoz-Rojas *et al.*, *RSC Appl. Interfaces*, 2025, **2**, 1607.

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