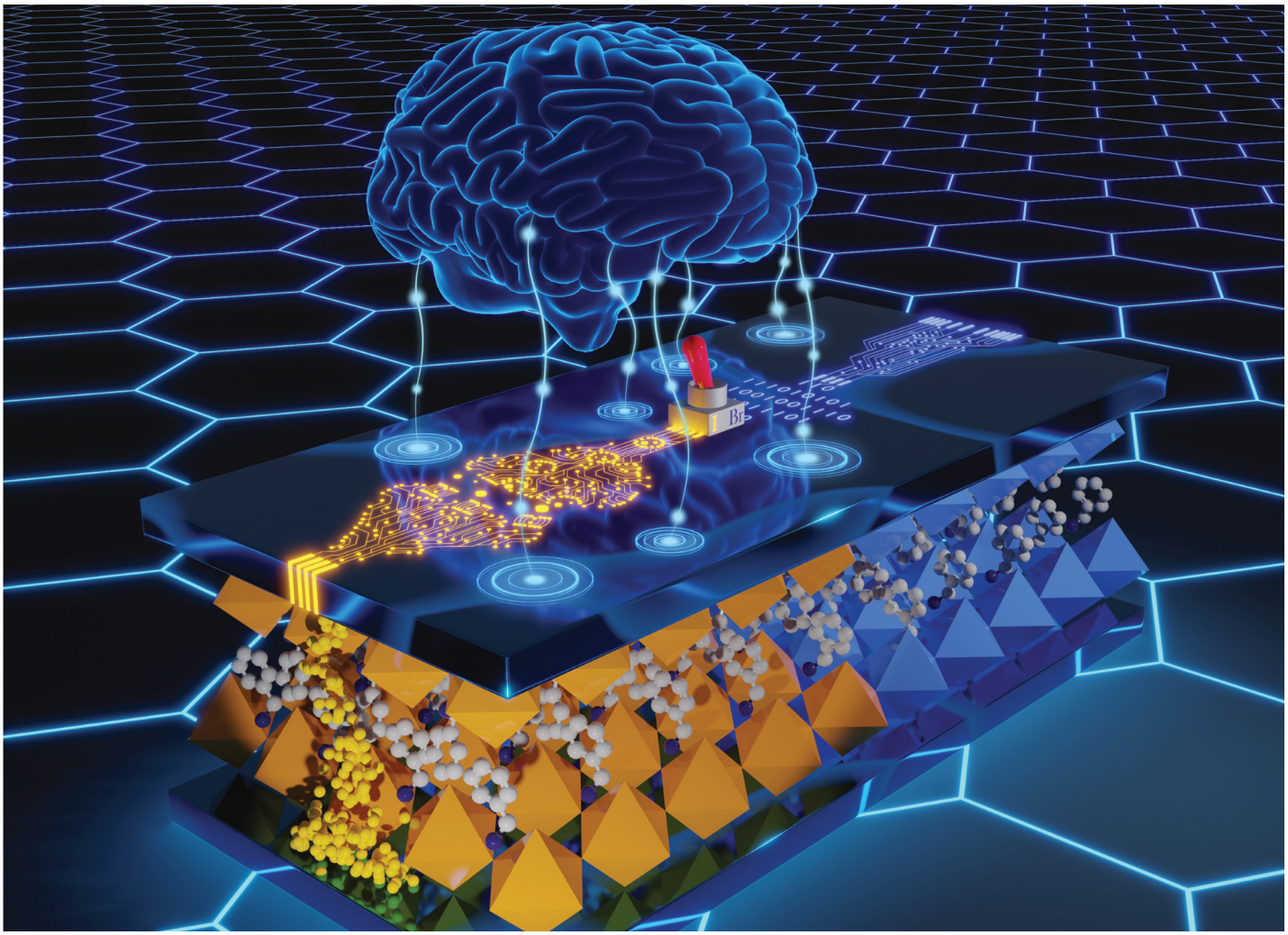

Showcasing research from Professors Jovana V. Milić and Mahesh Kumar's laboratories at the Adolphe Merkle Institute of the University of Fribourg in Switzerland and Indian Institute of Technology, Jodhpur in India.

Resistive switching in benzylammonium-based Ruddlesden–Popper layered hybrid perovskites for non-volatile memory and neuromorphic computing

Artificial synapses based on resistive switching emerged as promising platforms for brain-inspired computing technologies, and hybrid halide perovskite materials provided an opportunity to simplify these device architectures. However, their instabilities under operating conditions compromise reliability, stimulating research efforts to address this critical challenge. This work demonstrates reliable resistive switching and synaptic behaviour in layered benzylammonium-based halide perovskites. Moreover, it reveals a unique transformation from digital to analogue upon changing the halide composition from bromide to iodide anion, highlighting these materials as promising candidates for non-volatile memory and neuromorphic computing.

As featured in:

See Mahesh Kumar and Jovana V. Milić *et al.*, *Mater. Adv.*, 2024, **5**, 1880.

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