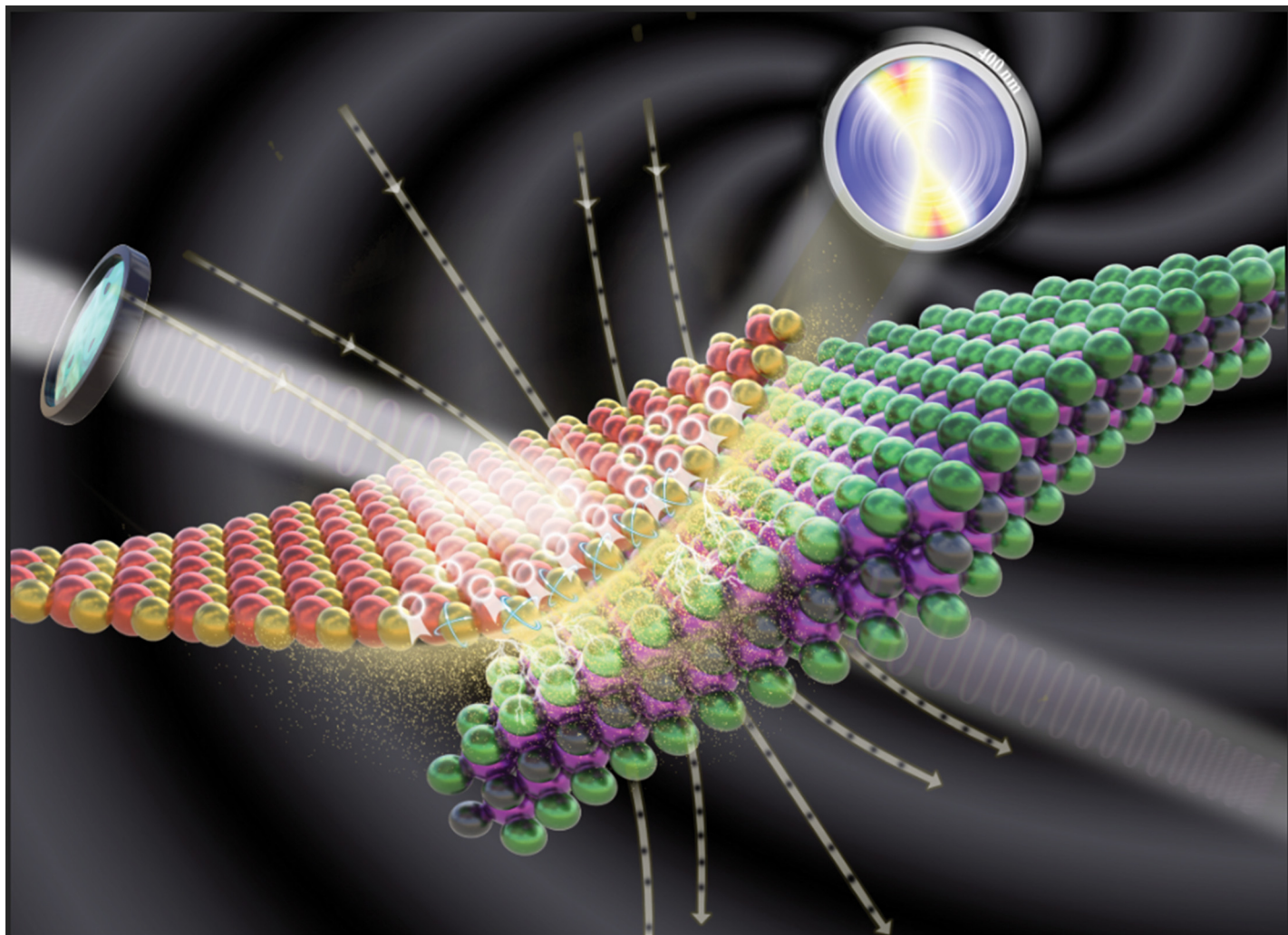




Showcasing research from the group of Prof. Zhen Cui at Xi'an University of Technology, China.

Self-powered photodetector of GaN/Sc₂CCl₂ heterojunction with high carrier mobility and polarization sensitivity

The potential of the GaN/Sc₂CCl₂ heterojunction structure as a photodetector is investigated using first-principles calculations. This work reveals that the heterostructure exhibits structural stability and behaves as a type-II narrow-bandgap semiconductor, demonstrating high carrier mobility and excellent light absorption capacity. By constructing a photodetector device to study its photoelectric response, significant photocurrent generation under polarized light illumination is observed, with an extinction ratio reaching 326.1. The high extinction ratio indicates exceptional polarization sensitivity in the optoelectronic device.

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