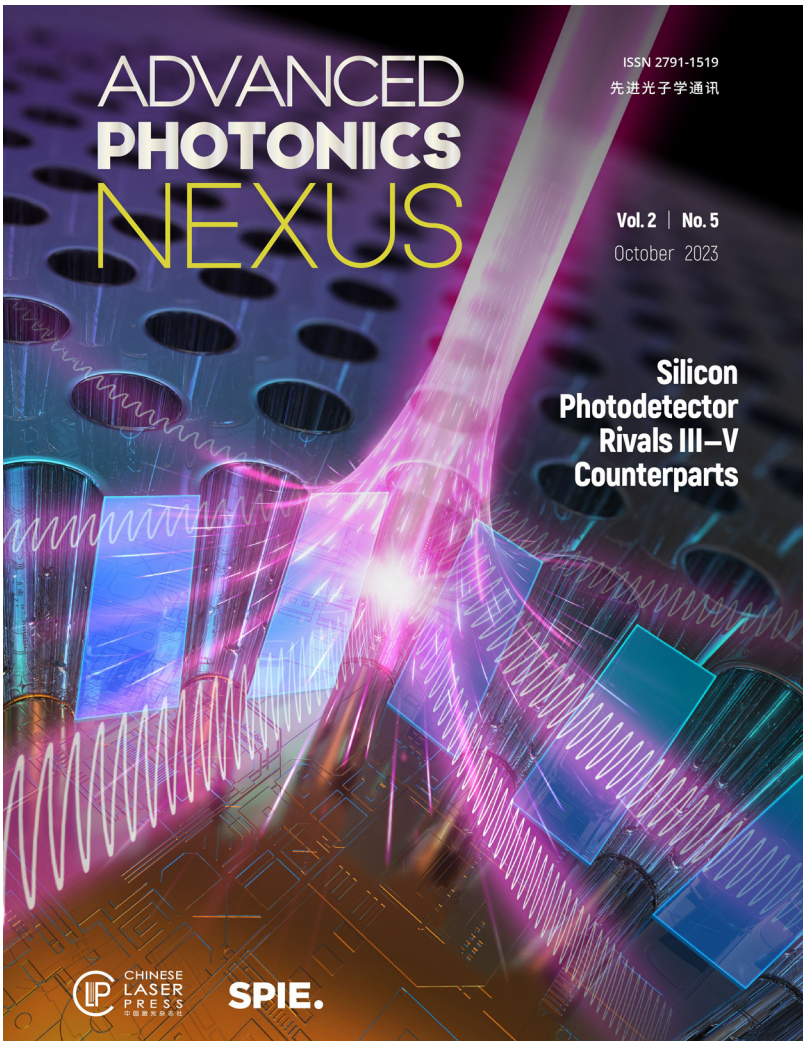

About the cover: *Advanced Photonics Nexus* Volume 2, Issue 5

The photosensitivity of silicon is inherently very low in the visible electromagnetic wave spectrum, and it drops rapidly in near-infrared wavelengths – a wavelength spectrum range essential for emerging applications in ultrafast computer networks, data communications, quantum computing, and imaging systems.

The image on the cover for *Advanced Photonics Nexus* Volume 2 Issue 5 illustrates a novel engineering technique utilizing photon-trapping surface structures to experimentally demonstrate an extraordinary improvement of photoabsorption in thin silicon that surpasses the inherent absorption efficiency of gallium arsenide for a broad spectrum of wavelengths. The photon-trapping structures allow the bending of normally incident light beams into laterally propagating modes of light along the plane of the silicon film. Consequently, the propagation length of light increases, contributing to more than an order of magnitude improvement in light absorption efficiency in photodetectors. These photon-trapping structures notably slow down the optical group velocity of light compared to their counterparts, like structures without holes, resulting in markedly improved light–matter interactions.

The image is based on original research presented in the article "Achieving higher photoabsorption than group III-V semiconductors in ultrafast thin silicon photodetectors with integrated photon-trapping surface structures," by Wayesh Qarony, Ahmed S. Mayet, Ekaterina Ponizovskaya-Devine, Soroush Ghandiparsi, Cesar Bartolo-Perez, Ahasan Ahamed, Amita Rawat, Hasina H. Mamtaz, Toshishige Yamada, Shih-Yuan Wang, and M. Saif Islam (doi 10.1117/1.APN.2.5.056001).