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The demand for observing three-dimensional (3D) dynamic subcellular structures with high axial resolution pushes the improvement of fluorescence microscopy. Trade-offs, however, exist between axial resolution and other important technical indicators, such as temporal resolution and laser power density. The newly proposed method for super-resolution microscopy not only solves the poor-axial-resolution problem, but also expedites the data acquisition procedure with low power density.

The image on the cover for *Advanced Photonics* Volume 5 Issue 5 illustrates 3D morphology imaging of living cells with

high axial resolution by applying structured illumination and fluorescence interference of 4Pi structure.

The image is based on original research presented in the article by Yile Sun, Hongfei Zhu, Lu Yin, Hanmeng Wu, Mingxuan Cai, Weiyun Sun, Yueshu Xu, Xinxun Yang, Jiaxiao Han, Wenjie Liu, Yubing Han, Xiang Hao, Renjie Zhou, Cuifang Kuang, and Xu Liu “[Fluorescence interference structured illumination microscopy for 3D morphology imaging with high axial resolution](#),” *Adv. Photonics* 5(5), 056007 (2023), doi [10.1117/1.AP.5.5.056007](#).