

Correlative Super-resolution Bright Field and Fluorescence

Imaging by Microsphere Assisted Microscopy

Hao Luo^{1,2,3}, Chaodi Jiang^{1,4}, Yangdong Wen⁵, Xiaoduo Wang^{1,2}, Feifei Wang⁶, Lianqing Liu^{1,2},
and Haibo Yu^{1,2*}

¹. State Key Laboratory of Robotics, Shenyang Institute of Automation, Chinese Academy of Sciences, Shenyang 110016, China

². Institutes for Robotics and Intelligent Manufacturing, Chinese Academy of Sciences, Shenyang 110016, China

³. University of Chinese Academy of Sciences, Beijing 100049, China

⁴. Shenyang Jianzhu University, Shenyang 110168, China

⁵. Institute of Urban Rail Transportation, Southwest Jiaotong University, Chengdu 610000, China

⁶. Department of Electrical and Electronic Engineering, The University of Hong Kong, Hong Kong 999077, Hong Kong

*Correspondence to: yuhaibo@sia.cn

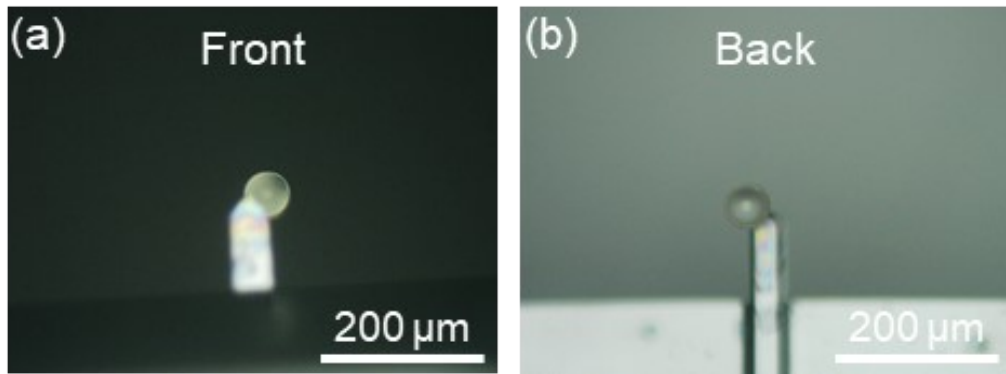


Figure S1, Front and back view of microspheres fixed on a cantilever

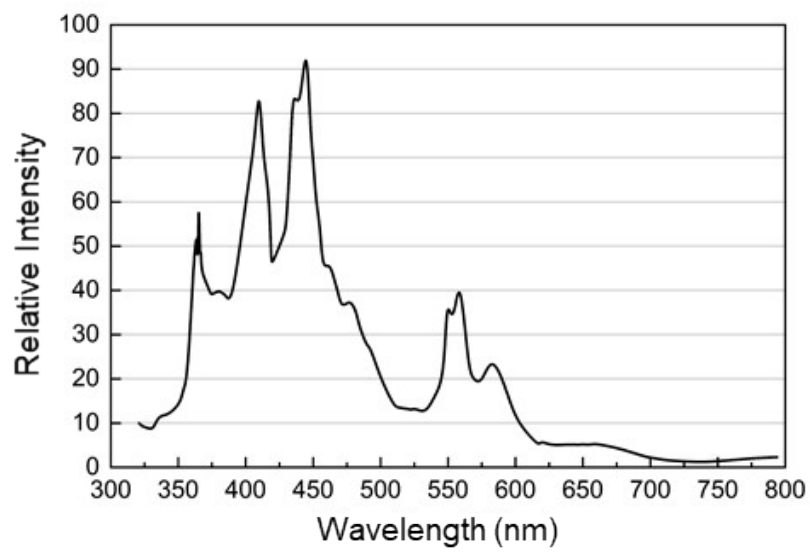


Figure S2, A picture of spectrum of white-light source

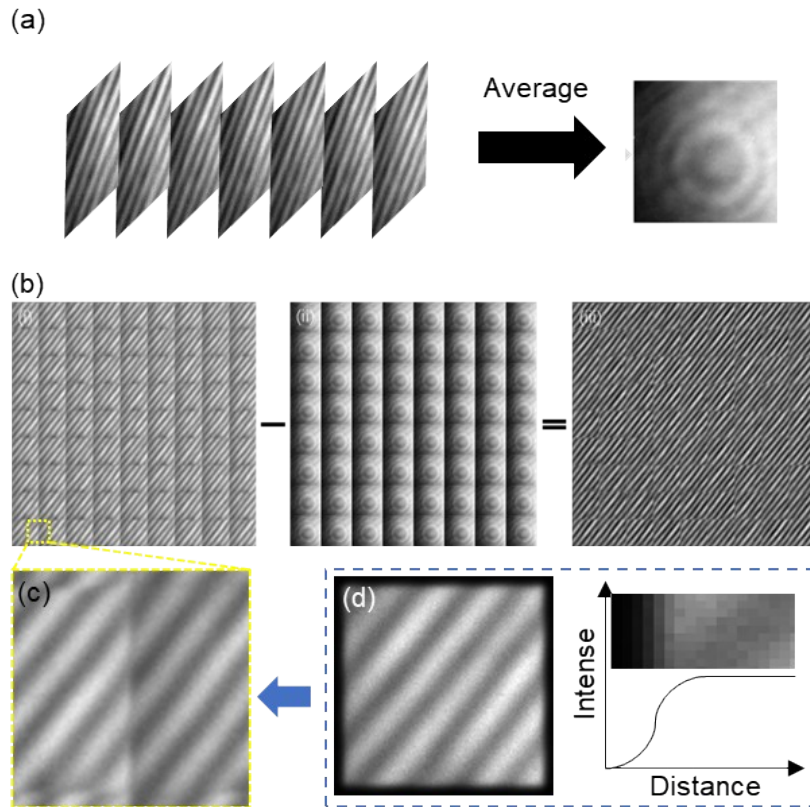


Figure S3: Background removal schematic, (a) Averaging all images to obtain the background noise. (b) Subtracting the image with background noise from the directly stitched image optimizes the problem of uniform illumination steps due to the Newtonian rings of the microsphere lens. (c) Stitched zoomed image of two neighboring images. (d) Edge defocusing process and its intensity distribution with center distance.