Towards Laser-based Angle-Resolved Photoemission Spectroscopy at Ultralow Temperatures

TEJAS DESHPANDE, JOHN HARTER, California Institute of Technology, ALEXEI FEDOROV, Advanced Light Source, Lawrence Berkeley National Laboratory, DAVID HSIEH, California Institute of Technology — Recent technical advances in angle-resolved photoemission spectroscopy (ARPES) have enabled electronic structures of solids to be mapped at sub-Kelvin temperatures [1] or with sub-meV energy resolution [2]. However, achieving both conditions simultaneously remains an ongoing effort in the ARPES community. To this end, we discuss our progress in employing a laser-based source to perform ARPES of novel materials at ultralow temperatures.