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Visualizing phase separation through electronic structure microscopy

Phase separation on the micrometer to nanometer scale is characteristic for correlated ^[1-4]. Revealing the electronic structure of each single-phased domain is fundamental, yet experimentally it has been a grand challenge due to the large beam size used in angle-resolved photoemission spectroscopy (ARPES), which measures only spatially-averaged electronic structures. By focusing the beam down to micrometer (μm) or sub-micrometer scale, MicroARPES and NanoARPES provide unique capability for visualizing the phase separation and mapping out the previously inaccessible electronic structure. Here, I will present our recent experimental results on the electronic structure of phase separated material by using laser-based MicroARPES and synchrotron-based NanoARPES.

References

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