

Abstract Submitted
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TOF Electron Energy Analyzer for Spin and Angular Resolved Photoemission Spectroscopy¹ GENNADI LEBEDEV, CHRIS JOZWIAK, NORD ANDRESEN, ZAHID HUSSAIN, LBNL, ALESSANDRA LANZARA, UC Berkeley — Current pulsed laser and synchrotron x-ray sources provide new opportunities for Time-Of-Flight (TOF) based photoemission spectroscopy to increase photoelectron energy resolution and efficiency compared to current standard techniques. The principals of photoelectron timing front formation, temporal aberration minimization, and optimization of electron beam transmission are presented. We have developed these concepts into a high resolution a TOF Electron Energy Analyzer for photoemission spectroscopy. The electron optical scheme of the analyzer includes an electrostatic objective lens, three columns of transport lenses and a 90 degree energy band pass filter (BPF). High efficiency exchange scattering based spin polarimeter [1] is used for electron spin detection. The analyzer support two modes of operation: Spectrometer Mode allowing the entire spectrum to be measured, and Monochromator Mode in which the BPF passes a specified energy window inside the scope of the electron energy spectrum. [1] J. Graf, C. Jozwiak, A. K. Schmid, Z. Hussain, and A. Lanzara, *Physical. Rev. B* **71**, 144429 (2005)

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