

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Evidence of the Ortho II band folding in of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ underdoped surface LUC PATTHEY, Paul Scherrer Institut, YASMINE SASSA, ETH Zürich and Paul Scherrer Institut, MILAN RADOVIC, EPFL and Paul Scherrer Institut, MARTIN MÅNSSON, XIAOYU CUI, ETH Zürich and Paul Scherrer Institut, STÉPHANE PAILHÉS, Laboratoire Leon Brillouin, MING SHI, PHILIP WILLMOTT, Paul Scherrer Institut, FABIO MILETTO GRANOZIO, Università Di Napoli, JOËL MESOT, Paul Scherrer Institut — Fermi surface and low energy electronic structure of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ (Y123) is investigated using angle-resolved photoemission spectroscopy (ARPES) on pulsed laser deposition (PLD) in situ grown films. By PLD, the Y123 surface is carefully controlled to produce underdoped surfaces with ordered oxygen vacancies within the CuO chains. The resulting Fermi surface displays a clear Ortho II band folding, showing how order within the CuO chains strongly affect the electronic properties of the superconducting CuO₂ planes. Until now, the Ortho II band folding has not been detected by ARPES measurements. This present approach opens the door to systematic studies in the remaining question concerning the ambiguous nature of the pseudogap phase for high-temperature cuprates.

Luc Patthey
Paul Scherrer Institut

Date submitted: 22 Dec 2009

Electronic form version 1.4