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Attosecond photoelectron spectroscopy at surfaces RALPH ERNSTORFER, Physics Department E11, TU Munich, 85747 Garching, ADRIAN CAVALIERI, Max Planck Institute of Quantum Optics, 85748 Garching, STEFAN NEPPL, Physics Department E20, TU Munich, 85747 Garching, ELISABETH MAGERL, Max Planck Institute of Quantum Optics, 85748 Garching, JOHANNES BARTH, DIETRICH MENZEL, PETER FEULNER, Physics Department E20, TU Munich, 85747 Garching, FERENC KRAUSZ, Max Planck Institute of Quantum Optics, 85748 Garching, REINHARD KIENBERGER, Physics Department E11, TU Munich, 85747 Garching — We apply the attosecond streaking technique for time-resolved studies of electron emission from solids. Employing isolated attosecond XUV pulses in combination with sub-4 femtosecond NIR pulses, the relative timing of photoemission from different electronic states can be determined with a temporal resolution approaching 10 attoseconds. In the quest of measuring the absolute time between photoexcitation an emission of an electron from a solid, we investigate clean metal surfaces in comparison to xenon covered surfaces. In addition, we study the relative emission time of 5d valence electrons and 4d core electrons of atomic xenon in comparison to condensed xenon.

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