

Abstract Submitted
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Charge Migration in Phenylalanine Initiated by Attosecond Pulses JASON GREENWOOD, Queen's University Belfast, UK, ANDREA TRABATTONI, Politecnico di Milano, Italy, DAVID AYUSO, Universidad Autónoma de Madrid, Spain, LOUISE BELSHAW, SIMONE DE CAMILLIS, QUB, UK, SUNIL ANUMULA, Politecnico di Milano, Milano, Italy, FABIO FRASSETTO, LUCA POLETTI, IFN-CNR, Padova, Italy, ALICIA PALACIOS, Universidad Autónoma de Madrid, Spain, PIERO DECLAVA, Università di Trieste, Italy, FERNANDO MARTIN, Universidad Autónoma de Madrid, Spain, FRANCESCA CALEGARI, IFN-CNR, Milano, Italy, MAURO NISOLI, Politecnico di Milano, Italy — In the past few years attosecond techniques have been implemented for the investigation of ultrafast dynamics in molecules. The generation of isolated attosecond pulses characterized by a relatively high photon flux has opened up new possibilities in the study of molecular dynamics. We report on experimental and theoretical results of ultrafast charge dynamics in a biochemically relevant molecule, namely, the amino acid phenylalanine [1-2]. The data represent the first experimental demonstration of the generation and observation of a charge migration process in a complex molecule, where electron dynamics precede nuclear motion. The application of attosecond technology to the investigation of electron dynamics in biologically relevant molecules represents a multidisciplinary work, which can open new research frontiers: those in which few femtosecond and even sub-femtosecond electron processes determine the fate of biomolecules. [1] L. Belshaw et al., *J. Phys. Chem. Lett.*, 3, 3751–3754 (2012). [2] F. Calegari et al., *Science* 346, 336-339 (2014).

Jason Greenwood
Queen's University Belfast

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