

# Laser Seminar / NCCR MUST Seminar

## Thursday, September 7, 2017

Time	<b>14.30h</b>
Location	ETH Zurich, Hönggerberg, HPF G6
Speaker	Cornelia Hofmann, Max Planck Institute for the Physics of complex Systems, Dresden, Germany
Title	Attoclock Revisited
Abstract	<p>The attoclock is a recently developed approach for the extraction of tunneling delay time in the context of strong field ionization [1,2]. The most recent attoclock experimental measurements [3], which found sub-luminal tunneling times over a wide intensity range, sparked a number of theoretical developments [4–7]. Another independent attoclock experiment [8] recently found finite tunnelling delay times as well. However, while the experiments seem to agree that quantum tunnelling does not happen instantaneously [3,8,9], there is no consensus yet on the theoretical side [4–7]. This talk will survey recent theoretical and experimental developments in the attoclock approach to extracting tunneling delays. I will discuss the implications of recent new discoveries on the interpretation of attoclock experiments, such as non-adiabatic effects [10,11], photoelectron momenta at the tunnel exit [6,8], electron correlation [12,13], and the exit coordinate [5].</p> <p>[1] Eckle, P.; Smolarski, M.; Schlup, P.; et al. <i>Nature Physics</i> 2008, 4 (7), 565–570. [2] Eckle, P.; Pfeiffer, A.N.; Cirelli, C.; et al. <i>Science</i> 2008, 322 (5907), 1525–1529. [3] Landsman, A.S.; Weger, M.; Maurer, J.; et al. <i>Optica</i> 2014, 1 (5), 343. [4] Zimmermann, T.; Mishra, S.; Doran, B.R.; et al. <i>Physical Review Letters</i> 2016, 116 (23), 233603. [5] Ni, H.; Saalman, U.; Rost, J.M. <i>Physical Review Letters</i> 2016, 117 (2), 023002. [6] Teeny, N.; Yakaboylu, E.; Bauke, H.; et al. <i>Physical Review Letters</i> 2016, 116 (6), 063003. [7] Torlina, L.; Morales, F.; Kaushal, J.; et al. <i>Nature Physics</i> 2015, 11 (6), 503–508. [8] Camus, N.; Yakaboylu, E.; Fechner, L.; et al. <i>Physical Review Letters</i> 2017, 119 (2), 23201. [9] Fortun, A.; Cabrera-Gutiérrez, C.; Condon, G; et al. <i>Physical Review Letters</i> 2016, 117 (1), 010401. [10] Hofmann, C.; Zimmermann, T.; Zielinski, A.; Landsman, A.S., <i>New Journal of Physics</i> 2016, 18 (4), 043011. [11] Klaiber, M.; Hatsagortsyan, K.Z.; Keitel, C.H., <i>Physical Review Letters</i> 2015, 114 (8), 083001. [12] Majety, V.P.; Scrinzi, A., <i>Journal of Modern Optics</i> 2017, 0340 (January), 1–5. [13] Emmanouilidou, A.; Chen, A.; Hofmann, C.; et al. <i>Journal of Physics B: Atomic, Molecular and Optical Physics</i> 2015, 48 (24), 245602.</p>
Host	Ursula Keller, Ultrafast Laser Physics, IQE
More Info	<a href="http://www.fastlab.ethz.ch/laser-seminar.html">http://www.fastlab.ethz.ch/laser-seminar.html</a>



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