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## Overview of recent electron acceleration and X-ray generation results from Garching

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The LMU ATLAS laser has recently been upgraded to 200 TW peak power and a new electron acceleration beamline was built. We will report on the first campaign with the new system in 2016. Various injection schemes yield up to nC beam charge and tunable energy (0.1-1.5 GeV). Combining shock-front and colliding pulse injection yields two independently tunable, quasi-monochromatic electron bunches suitable for driver-witness-type experiments. We studied the wakefields and beam currents using few-cycle shadowgraphy/faraday rotation probe pulses down to the low  $10^{18}$  cm<sup>-3</sup> density regime. In addition to the first observation of a fully broken bubble in the LWFA process, this diagnostic also proved the excitation of a wake by the primary LWFA electron bunch in a secondary plasma target as a first step towards true hybrid acceleration schemes.

In the field of X-ray generation, we continued our successful previous work towards applications of betatron radiation in medical imaging. Furthermore, we performed measurements and imaging using both single-pulse and dual-pulse Thomson scattering.

Finally, we will give a brief status update of the ongoing 3-PW upgrade of ATLAS in the new CALA laboratory.

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