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## Viable Laser-driven Ion Source for Applications at CALA

*Monday, September 25, 2017 7:30 PM (1 hour)*

One of the most intriguing features of laser-driven ion sources is their potentially short bunch duration and micrometer small source size (low longitudinal and transverse emittance), which are a direct consequence of the highly intense laser pulses at play. The transition from mostly single shot experiments performed during the last decade towards systems capable of repetition rates up to one Hz requires technological development. My talk will allude the basic principle of laser ion acceleration, supported by recent examples demonstrating its potential for applications. I will highlight recent progress regarding targetry and ion detection, pushing the performance towards higher repetition rates.

Using the unique features of laser-based accelerated ions for application may require guidance of the ion bunch. A set of permanent quadrupole magnets has been used to transport and refocus the beam on distances up to 1,5 m behind the interaction enabling a dose of multiple Gray within one bunch.

Those developments will facilitate a solid basis for our research targeted in the Centre for Advanced Laser Applications (CALA) at the research campus in Garching near Munich, which amongst other intriguing equipment, will host a 3 PW-laser system operated at 1Hz repetition rate.

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