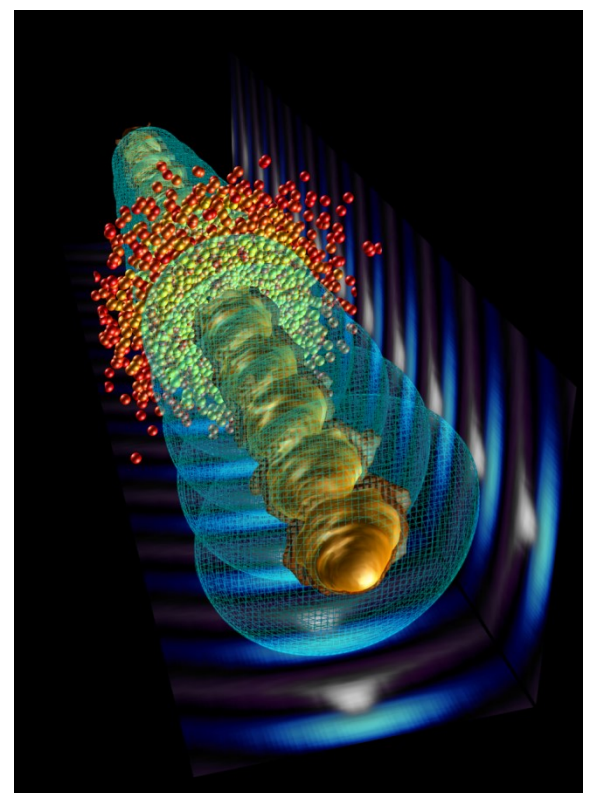


Acceleration of electrons in the plasma wakefield of a proton bunch at the AWAKE experiment.

Tuesday, 2 October 2018, DESY Auditorium, 16:45 h

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Plasma wakefield acceleration is a promising technique to increase the energy or reduce the size of accelerators. Pioneering experiments have shown that a laser pulse or electron bunch drive electric fields in plasma of 10s GV/m and above, orders of magnitude beyond those achieved in conventional RF accelerators. The use of proton bunches is compelling, as they have the potential to drive wakefields and accelerate electrons to high energy in a single accelerating stage. The long proton bunches currently available can be used, as they undergo self-modulation, which longitudinally splits the bunch into a series of high density microbunches, which then act resonantly to create large wakefields. The AWAKE experiment at CERN uses intense bunches of protons from the SPS to drive wakefields in which bunches of electrons are injected. In this talk, the first measurements of the modulation of the proton bunch and of electrons accelerated up to 2 GeV at the AWAKE experiment are presented. The future AWAKE programme and potential applications in high energy physics are also discussed.



Picture by J. Vieira (IST Lisbon)

- **Coffee, tea and cookies will be served at 16:30h**
- **After the colloquium there is a chance for private discussions with the speaker over drinks and pretzels**