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【304】AWAKE, the Proton Driven Plasma Wakefield Acceleration Experiment at CERN

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The Advanced Proton Driven Plasma Wakefield Acceleration Experiment (AWAKE) aims at studying plasma wakefield generation and electron acceleration driven by proton bunches. It is a proof-of-principle R&D experiment at CERN and the world's first proton driven PWFA experiment. The AWAKE experiment uses the 400GeV/c proton beam bunches from the SPS. The first experiments started end 2016 and focus on the self-modulation instability of the long (rms ˜12cm) proton bunch in the plasma. Later, in 2017/2018, low energy (˜15MeV) electrons will be externally injected to probe the wake-fields and be accelerated beyond 1GeV. First results are shown. A summary of the AWAKE design and construction status will be presented.

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