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## Status of the preparations for a plasma wakefield acceleration experiment at PITZ

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A proof-of-concept experiment for the AWAKE experiment is in preparation at the Photo-Injector Test Facility at DESY, Zeuthen site (PITZ). The goal of the experiment is to observe and measure the energy and density self-modulation of a long electron beam passing through a laser generated lithium plasma.

A new type of plasma cell was manufactured to fulfill feasible constraints of the experiment at PITZ. The plasma cell is a lithium heat pipe oven with inert gas buffers at all input/output ports. Key aspects of the construction are an ArF laser coupled through side ports for the plasma generation, as well as electron windows which separate the plasma from the vacuum beamline. Although side ports design is more complicated than coaxial laser coupling, it also has an advantage: a shadow mask can be used to control the plasma channel parameters, including its length. The electron windows have to be thin enough to minimize electron scattering, but have to be thick enough to maintain low buffer gas diffusion out of the plasma cell. Other aspects of the preparations are the generation of homogenous lithium vapor inside the cell and adjustments to the beamline to accommodate the experiment.

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