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## **WP 9 Workshop** on

PWFA baseline design and baseline beam parameters

in Frascati, Oct 3 and 4

Indico:

<https://agenda.infn.it/conferenceDisplay.py?confId=11856>

**Task 9.1: e-beam driver option and beam preparation (DESY, INFN).** Define desirable properties for electron beams as plasma wake drivers and identify mechanisms to produce them (close connection to WP 2 and WP 5). Optimize driver beam properties for the generation of high-quality witness beams (in close collaboration with WP 2).

**Task 9.2: plasma target and vacuum system (DESY).** Design plasma targets tailored to the generation of high-quality witness beams. Investigate and optimize the plasma target compatibility with vacuum system requirements.

**Task 9.3: plasma diagnostics (DESY).** Develop diagnostics for the three-dimensional mapping of plasma density profiles.

**Task 9.4: beam tailoring and release into vacuum (DESY, INFN).** Design of the plasma to vacuum transition for witness-beam parameter preservation and to optimize further beam transport (closely linked to WP 2 and WP 5).

**Task 9.5: staging of acceleration modules (DESY).** Investigate solutions for staging of multiple beam-driven wake-fields modules for applications at the energy frontier.

**Task 9.6: engineering issues and stability (DESY).** Investigate the susceptibility of the process to beam and plasma fluctuations (+ INFN). Optimize beam-parameter stability by means of plasma cell, and accelerator engineering.

48 person-months have been agreed with DESY and INFN.

The following deliverables have been agreed: Del 9.1. Baseline design report including electron beam optics, plasma modules, plasma diagnostics and beam transport to both applications (FEL and HEP) (Tasks 9.1 to 9.4) [month 30]. Del 9.2. Staging analysis (Task 9.5) [month 42]. Del 9.3. Tolerance analysis (Task 9.5) [month 42]. Del 9.4. Full design report EUPRAXIA, contribution from WP9 [month 48].