

AWAKE Week 21 (24-28 May 2021)

WEEK 21 SUMMARY: Second of 2 weeks of electron beam. Electrons in plasma with new beam optics, and first test of new wakefield diagnostic.

- **Electron Beam:** reinstated on Monday, used Monday/Tuesday to commission new optics (allow different beam sizes for same charge). Thursday: used new optics in electrons-in-plasma experiments, measured the energy/charge loss of 6 electron beams in plasma: 150 pC (three sizes S M L), 350 pC (M L), 600 pC (L). Friday: set up beam for wakefield diagnostic tests.

- **UV Laser:** compressor improvements increased electron beam charge, to be closer to the 2020 one. Max charge is now ~700 pC for a reasonable beam

- **Access System / Lights:** patrol broken when person took a token and immediately put it back in its slot before entering TAG41 with no token (PAD allowed entrance, but error correctly broke patrol). Investigating why RadVeto did not switch off automatically 30 minutes after the end of proton beam mode. Investigating why lights did not turn on again when the area was opened after the end of proton beam mode.

- **Plasma wakefield diagnostic:** set up and aligned (with warm vapor source). Can observe significant light when laser travels in Rb vapor. At the moment, no visible difference between laser+Rb (no wakefield) and laser+Rb+electrons (wakefield).

PLAN FOR WEEK 22: beginning of access periods of 2 or 3 weeks. Week 22/23: PXI upgrade, pulling network cables, laser motor replacement, vacuum opening downstream of vapor source (for Station 2 screen replacement and LBDP3 mirror replacement). Week 24: potential Rb recycling.

- Giovanni Zevi Della Porta