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Overview of Recent and Upcoming Activities at the BATMAN Upgrade Test Facility

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The BATMAN Upgrade (BUG) test facility at IPP is contributing to the development of RF-driven H^- sources towards the ITER neutral beam injection and beyond. BUG is equipped with an 1/8 size of the ITER NBI ion source and thus is highly flexible for setup changes or diagnostic access. The present strategy for BUG is aligned along two paths: (i) BUG is continued upgrading for long pulse operation (up to 1 hour, both in H and D) to identify measures for the stabilization of long pulses. For that, a Cs evaporation concept with evaporation close to the extraction system is being tested, showing a stabilization of co-extracted electrons in 100 s H pulses. (ii) BUG is used for investigations of whole beam and beamlet optics for which the beam diagnostics have been massively upgraded. A newly installed MITICA-like extraction system including asymmetric deflection compensation magnets shows a good compensation of the row-wise horizontal zig-zag deflection of the beam.

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