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FLASHlab@PITZ: irradiation experiments with high doses and dose rates

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FLASHlab@PITZ is a new setup for radiobiological irradiation experiments at the PITZ (Photo Injector Test stand at DESY, Zeuthen) accelerator. The main purpose is to investigate the FLASH effect and optimize irradiation parameters. The standard mode of operation is to irradiate samples with high beam current with a single bunch train (up to 4500 bunches within 1 ms). This results in several challenges, which will be presented here:

- 1) Achieving high stability/reproducibility (beam orbit/bunch charge) with limited feedback;
- 2) Beam loading;
- 3) High stress on the exit window (transition from vacuum to air).

Summary

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