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First-order detection for the Steady-State Microbunching experiment at the MLS

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Rising demand for high-power radiation sources has inspired the proposal of the Steady-State Microbunching mechanism. Its implementation will allow the generation of coherent radiation at a storage ring facility, creating a high peak power/high average power radiation source over a wide range of wavelengths up to the EUV range.

A Proof-of-Principle experiment is conducted at the Metrology Light Source (MLS) in Berlin and has already conclusively shown that a microbunch structure can be sustained over a full turn on a storage ring. The coherent signal detection has so far been conducted at higher undulator harmonics. This will be complemented by a fundamental mode detection setup as part of my Master's thesis, allowing the completion of the first phase of the PoP experiment.

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