

Diagnostics for BESSY VSR, an overview

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BESSY VSR is an upgrade project of the existing storage ring BESSY II to create long and short photon pulses simultaneously for all beamlines by installing superconducting cavities with harmonic frequencies of 1.5 GHz and 1.75 GHz. The storage-ring operation will be influenced by a transient beam-loading effect of all cavities in accordance with a complex filling pattern. This calls for bunch resolved measurements with sub-ps time resolution and micrometer spatial resolution. Currently, we are constructing a diagnostic platform for visible light as well as THz radiation and establishing not only sensitive and high-resolution beam diagnostics but also other innovative methods for the measurement of bunch-length as well as lateral size. In this presentation, the physical design and preliminary results will be presented.

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