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## Bunch resolved transverse beam diagnostics at BESSY II

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For diagnostics of the different bunch types at the BESSY II electron-storage ring, a streak camera and a fast-gated ICCD camera have been installed at two neighbouring beamlines, *both of which are powered by visible light from the same dipole magnet. This contribution is focused on the ICCD camera and its first applications. After an improvement regarding the ICCD repetition rate, the maximum illumination rate exceeds now the BESSY II revolution frequency of 1.25 MHz. Furthermore, we have improved the optical light-transfer system and characterized the optical magnification, the spatial resolution and time resolution of the system. Initial measurements have been restricted to direct bunch-resolved imaging of the 2-dimensional transverse shapes of different types of bunches. Specifically, the Pulse Picking by Resonant Excitation (PPRE) bunch is investigated in more detail. This bunch is horizontally broadened by a quasi-resonant incoherent perturbation\ and leads to pseudo single-bunch radiation within the complex multi-bunch fill-pattern at the BESSY II storage ring.*

### Footnotes

- G. Schiwietz et al., NIM-A990 (2021), 164992 \*\* K. Holldack et al., Nature Commun. 5 (2014) 4010. \*\*\* J.-G. Hwang et al., NIM-A940 (2019) 387.

### Funding Agency

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Yes

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