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## **Bunch Cleaning in a Multi-GeV Electron Storage Ring for High Bunch Purity Operations**

*Monday, 8 May 2023 16:30 (2 hours)*

At SPring-8, the injector was changed from the booster synchrotron to the XFEL linear accelerator. Accordingly, we have developed a new bunch cleaning system in the storage ring to ensure high bunch purities required by photon beam users since unwanted electrons were observed behind the injection bunch even after some countermeasures were taken in the injector to eliminate unwanted electrons. The bunch cleaner in the ring resonantly excites the vertical betatron oscillation on a targeted satellite bunch so that it is lost at the minimum aperture location without perturbing other bunches delivering photon beam to user experiments. The developed bunch cleaner has proved to achieve a bunch purity better than  $10^{-10}$ , which is already provided to a variety of user experiments demanding high bunch purities. The versatile system can work for all the bunch filling patterns with the regular top-up injection mode at SPring-8.

### **Funding Agency**

### **Footnotes**

### **I have read and accept the Privacy Policy Statement**

Yes

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