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Investigations into operating Pulse Picking by Resonant Excitation (PPRE) in the vertical plane

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As preparation for the upcoming Diamond-II upgrade, provisions for timing-users (those who predominantly care about the timing characteristics of the synchrotron radiation) are being investigated. Although 'Hybrid bunch' modes are currently employed at Diamond, such operation presents challenges for Diamond-II that merit investigating alternative approaches. PPRE, one such approach, involves resonantly exciting a targeted electron bunch using a Transverse Multi Bunch Feedback system (TMBF). We report on the efficacy of the TMBF for driving one (or few) bunches, focusing on studying the charge-dependent effects and the achieved vertical emittance, and also by considering the effect of long range impedance between bunches. Furthermore, to test experimentally the use of PPRE, we present our first results from a representative beamline. The work is also discussed in context of the proposed operational requirements for Diamond-II.

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Footnotes

I have read and accept the Privacy Policy Statement

Yes

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