



Contribution ID: 40

Type: **not specified**

## Impedances and wakefields

*Monday, 26 June 2023 09:30 (1 hour)*

The lecture reviews general concepts of beam-induced electromagnetic fields in accelerator devices. The concept of momentum kick is introduced and thus wake function and wake potential. The case of single-particle Green function as well as the bunch case are treated, giving the definition of the typically used quantities to describe such effects. Coupling impedance is introduced as Fourier Transform of the wake function, relevant to describe such interactions in ring accelerators. Examples are given from working machines as well as novel ones, presently under design, e.g. emittance limited storage rings and Future Circular Colliders. The lecture concludes by presenting possible applications of wakefields in particle accelerations.

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