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Crosstalk effects measurement on permanent magnets with hall probe mapping for the Upgrade of the Swiss Light Source (SLS2)

The Paul Scherrer Institut is currently involved in the upgrade of the Swiss Light Source (SLS2) accelerator. The goal is to increase the photon flux and the beam brilliance by keeping the same storage ring dimension. To achieve the new machine performance, a high density of magnets of about 1270 magnets instead of 388 is used. Therefore, the introduction of 372 permanent magnets (PM) was necessary. However, due to the proximity of the PMs to the electromagnets, the crosstalk effect becomes a problem in terms of the reduction of the field strength of the PM. An experimental campaign was carried out with a compact field mapper, using a 3D Hall probe, to assess the influence of the electromagnets on the PM field.
This presentation provides an overview of the crosstalk measurements, the comparison between simulations and experimental results and the adopted strategies for retuning the PMs in the machine.

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