Storage Ring Injection Area Upgrade at the Advanced Photon Source (APS)*

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Abstract

Recent machine studies at the APS showed that at a beam current of about 140 mA, the storage ring (SR) injection-area components experienced unacceptable temperature rises. Heating of these components is related to several factors, namely, aperture discontinuity, poor rf fingers' contact, inadequate x-ray shielding, and nonuniform conductive coating on the kicker ceramic chambers. To address these deficiencies, we have developed design upgrades for the injection-area kicker magnets, vacuum chambers, transition absorbers, and bellows-liner assemblies. In this paper we discuss important features of the new designs and their impact on machine operation at high beam current.

Keywords: storage ring, kicker magnets, ceramic chambers, bellows rf fingers

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