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# Light sources challenges

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The next generation of storage ring based light sources is approaching the diffraction limit in hard X-Ray range of the wavelengths. A factor of ten lower equilibrium horizontal emittance poses substantial challenges to the designers and builders of these rings. Specifications on the building blocks of the rings rely on advanced modeling of not only the non-linear optics but also of the main collective effects that contribute to the blow-up of the emittance. The talk will outline some of the challenges that are being faced by the ultimate storage ring based light source designs as well as by the damping rings designs for the future linear colliders.

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**Session Classification:** Motivation for HE machines, colliders, HI machines, light sources and damping rings