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## Intra-beam scattering and Touschek scattering optimizations for the upgraded SSRF

*Tuesday, 21 May 2024 16:00 (2 hours)*

In this study, we present the design of a candidate lattice for the Shanghai Synchrotron Radiation Facility Upgrade (SSRF-U) storage ring, reaching the soft X-ray diffraction limit. Due to its ultra-low emittance, intra-beam and Touschek scattering are significant and require attention. We conducted particle simulations to examine the emittance growth and beam lifetime of different machine configurations in the SSRF-U storage ring. Equilibrium beam emittance variations due to beam coupling, bunch lengthening and damping wigglers were identified through simulations. Additionally, Touschek scattering and beam lifetime were calculated.

### Footnotes

### Funding Agency

### Paper preparation format

Word

### Region represented

Asia

**Primary author:** LIU, Xinzhong (Shanghai Advanced Research Institute)

**Co-authors:** TIAN, Shun-Qiang (Shanghai Synchrotron Radiation Facility); WU, Xu (Shanghai Advanced Research Institute); GONG, Yihao (Shanghai Synchrotron Radiation Facility)

**Presenter:** LIU, Xinzhong (Shanghai Advanced Research Institute)

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