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## Residual Gas Lifetime in the HEPS Storage Ring

*Monday, 8 May 2023 16:30 (2 hours)*

The High Energy Photon Source (HEPS) is a 6 GeV diffraction-limited storage ring light source being built in China. Basic accelerator physical design and vacuum design have been completed. Interactions between the accelerated particles and the residual-gas molecules will lead to a reduction in the beam lifetime. The residual gas lifetime includes contributions from elastic gas scattering and gas bremsstrahlung. To simulate the residual gas lifetime in the HEPS storage ring, the position-dependent gas pressure for various gas species is first evaluated according to the layout of the vacuum elements. And then simulations of the elastic gas scattering and gas bremsstrahlung at multiple locations are performed with gas pressure profiles using ELEGANT. This paper will present the residual gas lifetime and the particle loss distribution obtained by the multi-particle tracking method.

### Funding Agency

### Footnotes

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Yes

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