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# Progress of polarized sources at BNL

*Wednesday 13 August 2025 16:00 (2 hours)*

The Optically Pumped Polarized Ion Source (OPPIS) has been providing polarized H- ions to the injector chain of the Relativistic Heavy Ion Collider (RHIC) since 2000. The OPPIS has undergone several upgrades. The latest upgrade, completed in 2022, included several improvements. Optimizing the Rb and Na cells has mitigated vapor dispersion in the beamline, resulting in a significant reduction of Rb and Na consumption and enhanced source stability. Modifications to the plasmatron have led to a substantial increase in the lifetime of source components.The upgrades confirmed reliable operation throughout Run-24, with a mean current of 350 μA and a pulse width of 300 μs, and an average polarization of 80% effectively provided at the end of the 200 MeV linac.

We are also developing a high-intensity ($2 \times 10^{11}$) ions/pulse) 3He++ polarized ion source for the future Electron-Ion Collider (EIC). This source will utilize a new technique based on the polarization of accumulated high-purity 3He gas in a high magnetic field through metastability-exchange optical pumping. The existing Electron Beam Ion Source (EBIS) will then ionize the polarized gas using its electron beam. In the test setup, a polarization of 80-85% has been achieved for ultra-pure 3He gas in the “Open” cell configuration. Now, we are testing the final gas cell configuration in the test lab with a 5 Tesla EBIS solenoid magnet.

## Please consider my poster for contributed oral presentation

Yes

## Would you like to submit this poster in student poster session on Sunday (August 10th)

No

## Footnotes

## Funding Agency

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## I have read and accept the Privacy Policy Statement

Yes

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