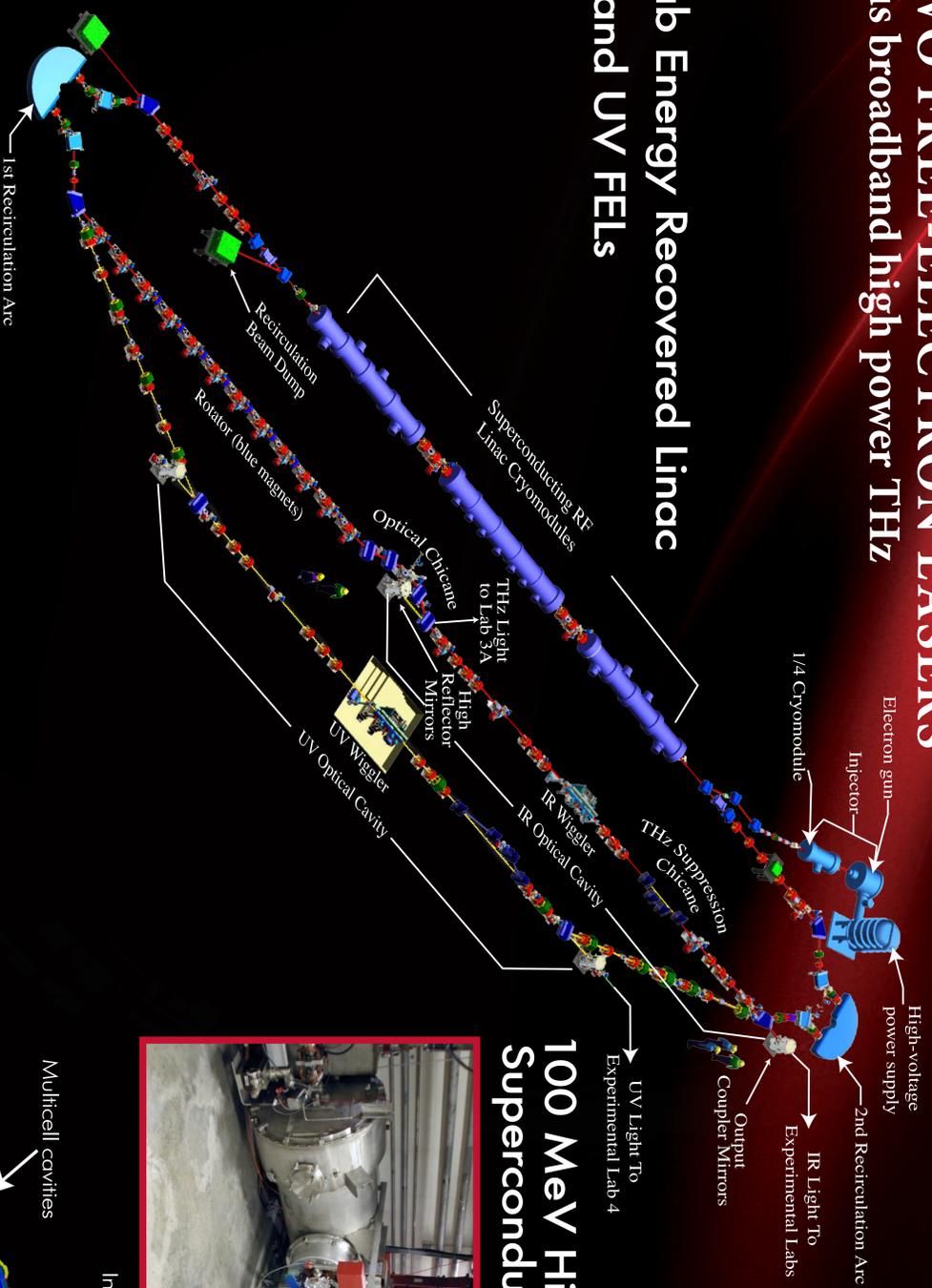


THE JEFFERSON LAB VUV/IR/THz FREE-ELECTRON PROGRAM

TWO FREE-ELECTRON LASERS
plus broadband high power THz

JLab Energy Recovered Linac
IR and UV FELs



100 MeV High Gradient
Superconducting Linac



KEY ACCELERATOR TECHNOLOGY
FOR A HARD X-RAY FACILITY

- High gradient cryomodule
- Recirculation
- CW injector

TECHNICAL SPECIFICATIONS

Electron beam

- Electron beam energy 135 MeV, Energy Recovered Linac
- 135 pC pulses up to 75 MHz
- FWHM < 1 ps

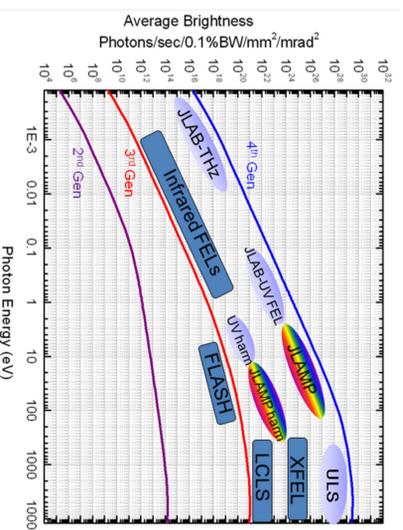
Photon beams

- UV-FEL: 1.5 eV - 3.5 eV fundamental 20 microJ/pulse
- VUV: 10 eV, 75 MHz, 20 nanoJ/pulse
- IR-FEL: 0.2 - 1 eV fundamental 120 microJ/pulse
- THz: 0.1 - 5 THz 1 microJ/pulse

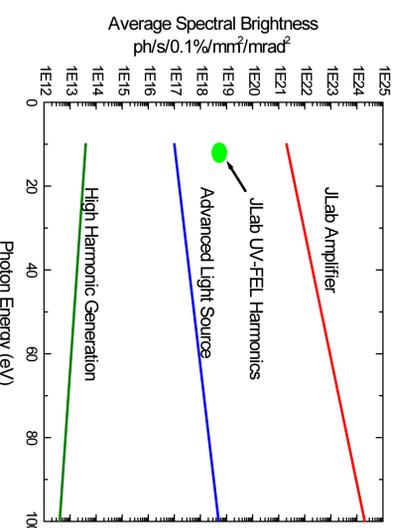
THE JEFFERSON LAB FEL TEAM



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Average brightness for various light sources with generic curves. ULS is an Ultimate Light Source, JLAB is a proposed extension of the JLab FEL to higher energies.



Average brightness comparison for various light sources showing the JLab VUV performance.