

## ALS Upgrade Goals and Project Status

*Thursday, May 5, 2022 4:15 PM (1 hour)*

The ALS-U project will upgrade the existing Advanced Light Source (ALS) at Berkeley Lab to deliver diffraction limited photon beam performance and aims to increase the beam brightness by two orders of magnitude for soft x-rays compared to the current ALS facility. The storage ring design utilizes a nine-bend achromat lattice with reverse bending magnets and on-axis swap-out injection from an accumulator ring. In order to achieve the new target brightness for the x-ray source, the storage ring lattice was optimized to reach a stored beam horizontal emittance of 70 pm rad, thereby requiring the addition of an accumulator ring to the accelerator complex.

Our talk will describe the optics design and highlight some of the challenging technical hardware developments. In addition, we will discuss installation progress of the accumulator ring as well as our extensive installation planning for the 12 months Dark Time where the ALS storage ring will be replaced with the new nine-bend achromat.

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