

**Lifetime Limitations at the Advanced Light Source\***, J. BYRD, W. DECKING, C. KIM, D. ROBIN, LBNL - The lifetime in an electron storage ring is determined by different processes: quantum excitation and radiation damping, inelastic and elastic scattering with the residual gas, and intrabeam scattering processes. Depending on the operating conditions either one or a combination of these effects determines the lifetime limit of a given machine. The ALS is a 1 to 2 GeV, low emittance, third generation synchrotron light source. At these storage rings, the lifetime is usually limited by the intrabeam scattering (Touschek) effect. We will show measurements of the lifetime of the ALS while varying conditions such as the transversal and longitudinal apertures, current density in the bunch, etc. These measurements allow us to distinguish between the different lifetime limiting effects and give an experimental base for making future decisions, for example, minimum allowable vacuum chamber apertures.

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