

Beam-Gas Lifetime Measurement in the PLS Electron Storage Ring*, S.M. CHUNG, I.S. KO, M. KWON, C.D. PARK, PAL/POSTECH Pohang, Korea - Among the various factors which determine the beam lifetime of the PLS electron storage ring, elastic (Coulomb) and inelastic (Bremsstrahlung) scattering lifetimes were measured using helium injection at pressures in the range between 1×10^{-8} and 5×10^{-7} Torr. The beam-gas lifetimes measured in the elevated cases with helium as well as in the normal operations were compared with the calculated ones. At high helium pressures the measured lifetimes are in agreement with the calculated ones within a factor of 3. At low pressures substantial discrepancies between measured and calculated values were apparent, indicating that other effects, e.g. Touscheck effects, mainly limit the beam lifetime.

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