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Electron Cloud Build-Up Simulations for the ILCDR's: Antechamber Benefit

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We review the simulation results for the electron cloud build-up for the ILC Damping Rings, for both lattice options considered (6 km and 3 km), in a field-free region and in a bending dipole magnet. While the 6 km lattice is slightly more forgiving than the 3-km lattice vis-a-vis the electron cloud effects, we conclude that, in general, the existence of an antechamber helps to dramatically reduce the electron-cloud density (factor ˜50) only if the peak secondary yield of the chamber surface is below a certain critical value. This critical value is in the range ˜1.1˜1.3, depending on various details.

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