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The vacuum concept for the SLS-2 storage ring

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The electron storage ring of the Swiss Light Source (SLS) is supposed to be exchanged for a new one following the principle of a multibend achromat lattice (MBA). The objective is to shrink the horizontal emittance of the electron beam by a factor forty. All vacuum chambers have to be exchanged for chambers with a much smaller cross section to fit into the numerous strong magnets. In order to cope with the conductance limitation, deposition of a non evaporable getter (NEG) film is proposed for the entire ring, for about half of the chambers on top of a copper deposition for reduction of the impedance seen by the beam. A combination of lumped and distributed absorbers will absorb synchrotron radiation generated in the seven principal dipole magnets in each of the twelve cells. The paper discusses potential technical solutions for the vacuum chambers, the photon absorbers and the vacuum control system.

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