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Title
Study of a Possible Energy Upgrade for the ALS and Modelling of the 'Real Lattice' by a Non-Linear Taylor Series Map

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Study of a Possible Energy Upgrade for the ALS and Modelling of the "Real Lattice" by a Non-linear Taylor Series Map,* M. MEDDAHI, J. BENGTSSON, and R. KELLER, Lawrence Berkeley Laboratory —

The change of expected performance of the Advanced Light Source (ALS) storage ring has been studied for an increase of energy from 1.5 to 1.9 and 2.3 GeV by modelling the change of dynamical aperture caused by saturation of the magnets. Furthermore, by using information on the higher-order multipole contents from magnet measurements, together with survey data for the magnets the corresponding non-linear Taylor series map has been computed for 1.5 GeV. This allows straightforward extraction of global properties such as non-linear chromaticity, amplitude-dependent tune shift, perturbation of the beta function, and phase advance for the "real lattice" (an improved model for the true lattice).

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