The Influence of Railway Trains on the LEP Beam Energy, G. BRUN, B. DEHNING, P. GALBRAITH, K. HENRICHSEN, CERN, Geneva; M. GEITZ, RWTH Aachen, Germany - The LEP electromagnetic bending field, and consequently the beam energy, is modified by currents flowing in the material of the vacuum chamber. Such a current is created by trains travelling between the main Geneva railway station and destinations in neighbouring France. The train locomotives are powered by a DC voltage maintained between an overhead power line and the rails. Some of the current leaks from the rails to earth and returns to the rectifier via the LEP tunnel using the excellent conductor provided by the vacuum chamber. The current in the chamber generates magnetic field lines that pass through the bending magnet yokes. Since the currents vary with the railway traffic, the total magnetic field is modulated in time. The slight magnetic field changes cause a slow increase of the bending field, which is measured with NMR probes. Energy increases of several MeV are observed during a typical 10 hour LEP physics run.