

Tomographic Measurements of Longitudinal Phase Space Density, S. HANCOCK, P. KNAUS, M. LINDROOS, CERN - Tomography is now a very broad topic with a wealth of algorithms for the reconstruction of both qualitative and quantitative images. One of the simplest algorithms has been modified to take into account the non-linearity of large-amplitude synchrotron motion. This permits the accurate reconstruction of longitudinal phase space density from one-dimensional bunch profile data. The method is a hybrid one which incorporates particle tracking, and considerable effort has been invested to optimize the computer code so that it may also be compiled to exploit parallel architectures efficiently. A selection of the results obtained at different CERN accelerators is presented. The starting-point in each case is simply a "mountain range" of digitized bunch profiles.