

ROXIE - A Computer Code for the Integrated Design of Accelerator Magnets,
S. RUSSENSCHUCK, CERN - The paper describes the ROXIE software program package which has been developed for the design of the superconducting magnets for the LHC at CERN. The software is used as an approach towards the integrated design of superconducting magnets including feature-based coil-geometry creation, conceptual design using genetic algorithms, optimization of the coil and iron cross-section using a reduced vector-potential formulation, 3d coil-end geometry and field optimization using deterministic vector-optimization techniques, tolerance analysis, production of drawings by means of a DXF interface, end-spacer design with interfaces to CAD-CAM for the CNC machining of these pieces, and the tracing of manufacturing errors using field quality measurements.