

**Fabrication and Assembly of the Drift-Tube Linac
for the Spallation Neutron Source ***

T. Ilg, R. Martineau, K. Christensen,
LANL, Los Alamos, NM, 87545 USA
and

G. Johnson, ORNL, Oak Ridge, TN 37830 USA

The Spallation Neutron Source (SNS) uses a linac to accelerate H^- ions to 1 GeV at an average beam power of 1.4 MW. The linac consists of four RF structures: a 2.5-MeV RFQ, an 87-MeV DTL, a 186-MeV CCL, and a 1-GeV SRF linac. The DTL is divided into six RF structures, each powered by a 2.5-MW klystron. Design of the DTL has been completed, and LANL has aligned, tuned, and fabricated the first segment (Tank #3) to be installed at ORNL. We describe the design and fabrication process, including machining of the tanks, copper plating of the tank segments, machining and welding of the drift tubes, and fabrication of steering magnets and beam-position monitors inserted in several drift tubes. In addition, the assembly and alignment of the RF components using the Leica Laser Tracer System Coordinate Measuring Machine are also discussed. Lessons learned in the manufacture and assembly process will be emphasized, particularly as they apply to subsequent SNS DTL segments and other high-power DTLs.

**Work supported by the US Department of Energy*