

**The Beam Loss Collection System on the ESS Accumulator Rings, C.M. WARSOP, Rutherford Laboratory** - The Accelerators of the European Spallation Source provide a mean beam power of 5 MW, and the need to minimise and control beam loss has dominated their design. The function of the beam loss collection system in the two 1.334 GeV accumulator rings is to localise all loss and associated activation as efficiently as possible, in one well shielded region, thereby allowing hands-on maintenance elsewhere. Here, the rings' beam loss collection system is described, detailing the collector system layout, the main parameters optimised, and how effective machine protection is ensured under most foreseeable circumstances. Important aspects of the design outlined are: optimising speed and efficiency of halo removal over the ~1000 turns the beam circulates in the ring, minimising halo and out-scatter, optimising transverse and longitudinal collector geometries, heat deposition and activation issues.