

A Computer Model of European Spallation Source Stripping Foil Temperatures, J.P. DUKE, Rutherford Appleton Laboratory, U.K. - An area in the ESS Design Proposal requiring further research and development is the Stripping Foil. With a 1.334 GeV beam of 2.34×10^{14} protons per pulse, the energy dumped in the foil by the beam will be much greater than in previous machines. In order to discover the temperatures that can be expected in the foil, a Fortran program has been developed to model the situation, using the distribution of foil hits by recirculating protons previously calculated by C.R. Prior. The area is divided into a square grid, with temperatures calculated for each square at each time point, and the effects of heat conduction between squares are included in the model, plus radiation from the surfaces. The foil is initially modelled using the material Aluminium Oxide, as used for the ISIS foils, but later Carbon foils may be investigated, as their properties at the predicted high temperatures may be an improvement on Aluminium Oxide.