

**A Combined 100 MeV Injector and IR-FEL Facility at MAX-lab**, M. ERIKSSON, E. WALLÉN, S. WERIN, MAX-lab, Lund - A proposed design of a new 100 MeV electron linac that will replace the aging 100 MeV racetrack microtron at MAX-lab is presented. The linac will inject into the MAX-I electron storage ring at 100 MeV and when it is not used for injection it will feed an Infra Red Free Electron Laser (IR-FEL) operating in the wavelength domain 5-100  $\mu\text{m}$ . When feeding the IR-FEL the energy of the linac is between 25 and 50 MeV. Special attention is given to optimize the electron bunch structure for the IR-FEL application. The electron bunch structure is determined by the electron gun and bunching system and a refined thermionic RF electron gun will be used.