

### **Recent Developments at Cooler Rings, D. REISTAD,**

The Svedberg Laboratory, Uppsala - Methods to reduce the 6-D phase-space volume of stored ion beams have been achieved with three different methods, electron, stochastic and laser cooling. Stochastic cooling continues to be essential for the antiproton programmes at CERN and FNAL. It is/will be used together with electron cooling at a number of ion storage rings in Europe and Japan and at the new AD ring at CERN. Meanwhile, electron and laser cooling have become routine tools at low-energy cooler rings for preparing and maintaining beams for nuclear, atomic and accelerator physics experiments and for other precision experiments with heavy ions. Several new projects involving electron cooling are also under way, as well as the conversion of LEAR into LEIR at CERN. Considerations on so-called medium-energy electron cooling, i.e. cooling of multi-GeV proton and antiproton beams with relativistic electron beams aiming to increase the luminosity of the Tevatron and HERA, benefit from experiences gained at and experiments performed at low-energy ion cooler rings.