

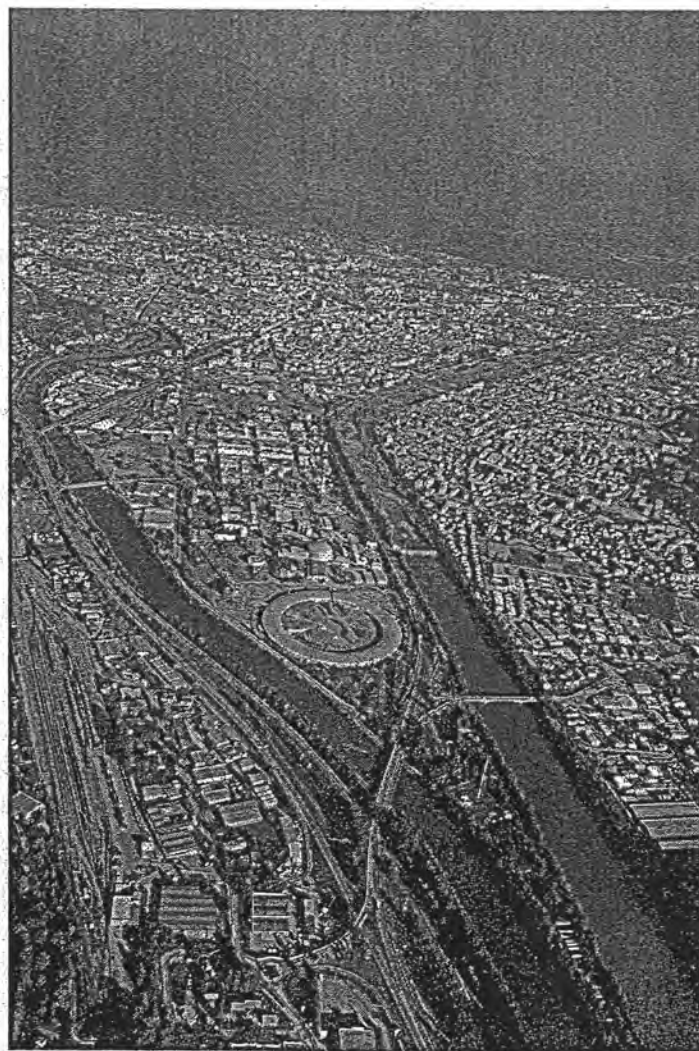
# HERCULES - 2006

Higher European Research Course for Users of Large Experimental Systems

NEUTRON AND SYNCHROTRON RADIATION  
FOR PHYSICS AND CHEMISTRY OF CONDENSED MATTER

NEUTRON AND SYNCHROTRON RADIATION  
FOR BIOMOLECULAR STRUCTURE AND DYNAMICS

Grenoble - France  
February 26 - March 31, 2006



SESSION B

PRACTICALS and TUTORIALS

## Practicals PS4B

### Studies of intermediate states in protein crystals (Cryobench)

V. ADAM

#### ESRF

Protein X-ray crystallography usually aims at determining the structure of an enzyme in its resting state, thus yielding only partial information on its mechanism. Molecules are often active in a protein crystal, and enzymatic reactions can be initiated. When the energy is limited, the system can evolve along the reaction pathway and remain trapped in intermediate states. We call kinetic crystallography a combination of biophysical methods coupled to X-ray diffraction that leads to the elucidation of an intermediate state structure at an atomic level. The Cryobench laboratory gathers various instruments essential for trapping and characterising intermediate states at cryogenic, or near-ambient, temperatures in a protein crystal.