ESRF	**Experiment title: In situ observation of the dynamics of extended defects by X-ray topography**	**Experiment number:** HC 226
Beamline: ID 19	**Date of experiment:** from: May 1998 to	**Date of report:** 1998
Shifts: 1	**Local contact(s):** J. Baruchel, J. Härtwig	*Received at ESRF:* 2 8 AOUT 1998

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Report: No beam time was allocated to this project in 1997

With permission of local contacts and co-workers, we used however one of the shifts allocated to the parallel project of Fe-4%Si, in order to evaluate the capability of our straining device built for the ID 19 beam line at high temperatures (experiments on Fe-Si bicrystals were planned at room temperature only).

We were able to deform a silicon single crystal (14 x 4 x 4 mm in size) at

resolved shear stress of ~ 80 MPa

temperature 1020 K

with in situ observation of dislocations motion by transmission topography :

exposure time ~ 0.3 sec. (could have been less)

interval between exposures ~ 10 sec. (could have been less) ; recording of images on a Kodak SR films, translated stepwise between two exposures.

The contrast of dislocation groups was sufficient to measure dislocation velocities.

This proves the feasibility of proposed experiments, with existing equipment.