



	<b>Experiment title:</b> Nanochannels in track etched membranes	<b>Experiment number:</b> ME419
<b>Beamline:</b> ID01	<b>Date of experiment:</b> from: February 25 to: March 2 2003	<b>Date of report:</b>
<b>Shifts:</b>	<b>Local contact(s):</b> Bruno Jean	<i>Received at ESRF:</i>
<b>Names and affiliations of applicants (* indicates experimentalists):</b> <b>G. Pépy*</b> , LLB, CEA SAclay, 91191 Gif sur Yvette CEDEX, France <b>A. Kuklin*</b> , FLNP, JINR, Dyubna, Russia <b>C. Trautmann*</b> , GSI, Darmstadt, Germany <b>Z. Siwy*</b> , GSI, Darmstadt, Germany		

## Report:

During this experiment we have observed various sets of track etched membranes.

In the previous experiment, SC934, we had obtained excellent results with amorphous polycarbonate which produced high quality nanochannels.

This present experiment allows to compare the effect of irradiation on different "generations" of polycarbonate membranes, irradiated with various high energy ions. In the most favourable cases we even observed directly the scattering by the tracks, before etching. This is extremely important to understand the mechanism by which the heavy ions interact with the polymer.

We could also study sery of polyethyleneterephtalate membranes with smaller and smaller diameter channels, which is quite important considering the request of scientists wishing to use such small pore membranes for further experiments.

The 2 German partners had prepared special polyethyleneterephtalate and polyimide samples with similar nanochannels size, some cylindricals, some conical, or with adouble conus. While difficult it was possible to adjust and onserve the scattering from these non cylindrical channels as well.

**An external partner (M. Grasselli, Buenos Aires) had prepared a PET sample grafted with one layer of organic material and another one grafted with 2 layers. It was possible to observe different scattering from the 3 samples while the very limited contrast (Fig 1).**

**More than 7 series of about 10 samples each have been studied, which is very good considering the time consuming task of sample alignment.**

**It is too soon to give detailed analysis of the results, however we can already conclude that this experiment reached most of the goals assigned.**