

	<b>Experiment title:</b> saxs studies on ionomer (ion-conducting) membranes	<b>Experiment number:</b> 0201-699
<b>Beamline:</b> D2AM	<b>Date of experiment:</b> from: 21/07/06 7h00 to 24/07/06 7h00	<b>Date of report:</b> Sept 06
<b>Shifts:</b> 9	<b>Local contact(s):</b> C. Rochas	<i>Received at ESRF:</i>
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### Report:

Several ionomer films were investigated using SAXS technique from  $q=6e-3$  up to  $1.5 \text{ \AA}^{-1}$ . They were fluorinated based systems like Nafion or Dow membrane in which inorganic Phosphate-based compounds were introduced (Sol-Gel process) but also aromatic ionomer chains as a function of water content.

The experiments performed at three different sample to detector distances (10, 30 and 150 cm) were successful. Q-Calibration, Radial averaging as well as normalisation were applied on the raw data to get a wide range of scattering vectors. The analysis of the scattering curve profiles is in progress and for example for the hybrid (organic-inorganic) systems, we have to understand the impact of the solid particle growth and structure embedded in the polymeric matrix and the corresponding effects on the water transport properties. These data will be correlated with PFGNMR studies.

See below some examples of the pre-analysed scattering curves:

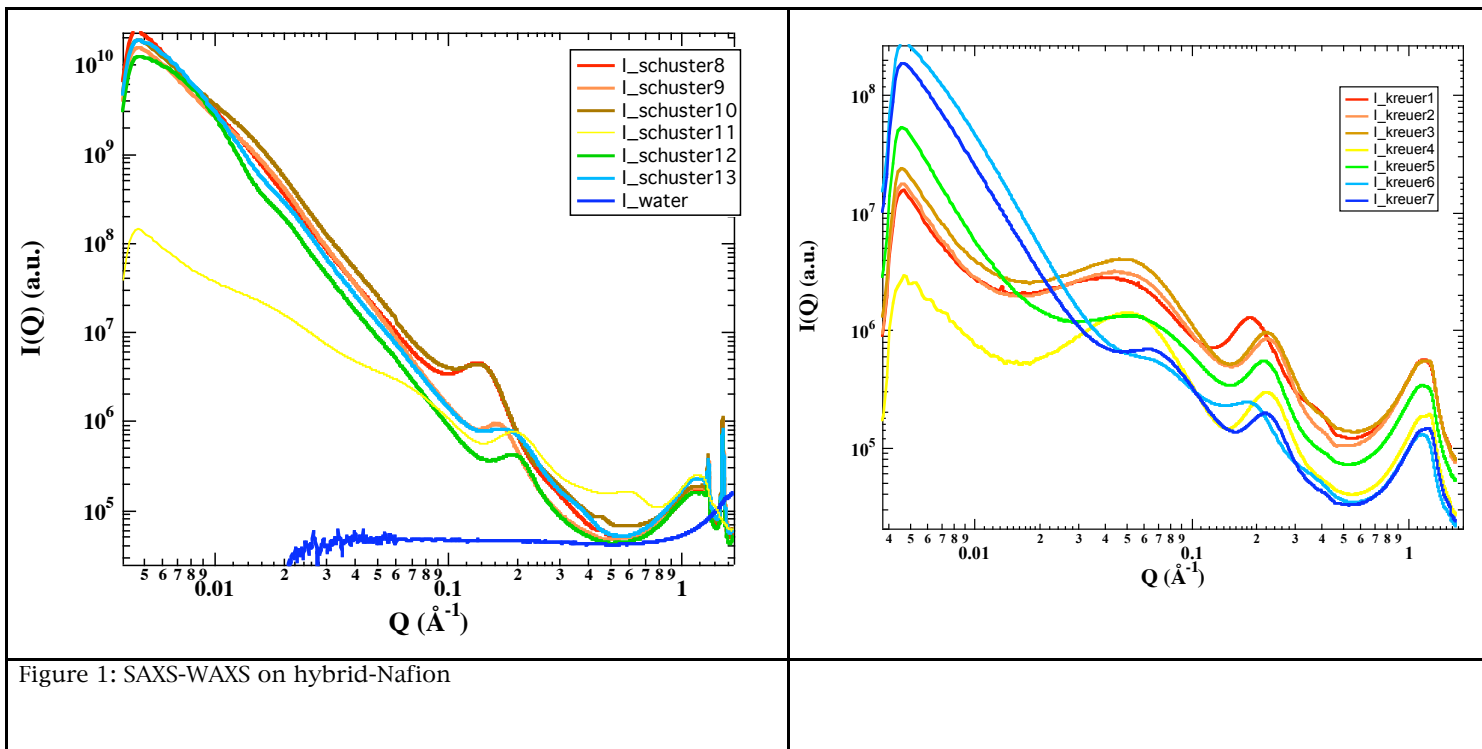


Figure 1: SAXS-WAXS on hybrid-Nafion