ESRF	**Experiment title:** EXAFS study on the alpha-AgI phase stabilized at room temperature in a glass matrix	**Experiment number:** CH-382
Beamline: BM29	**Date of experiment:** from: 10-Dec-97 to: 14-Dec-97	**Date of report:** 3-mar-1998
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PRELIMINARY Report:

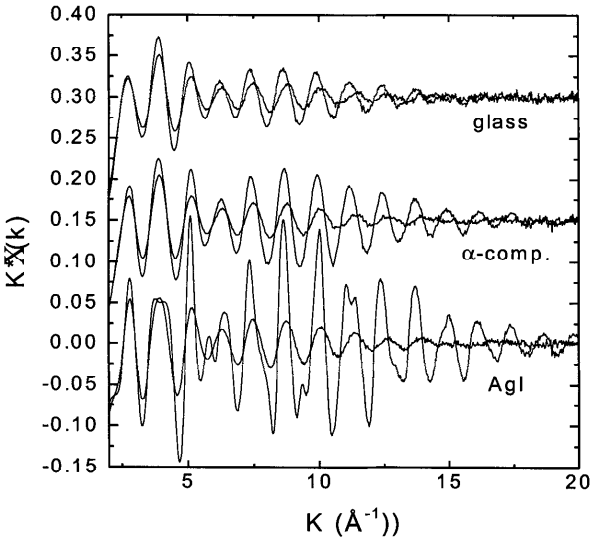
A growing interest has developed in the last years towards ionic conductivity in oxide glasses containing a modifier oxide and a doping salts, particularly AgI. [I]

The mechanism of fast ion conductivity has not yet been definitively clarified: a better knowledge of the local structure is highly desirable either in crystalline or glassy superionic materials.

The success [2] in stabilizing the superionic α-phase of crystal AgI in a glass matrix at room temperature opens the possibility to study more deeply the microscopic origin of fast ion conduction. In fact, the c-AgI becomes a fast ion conductor only in the a-phase, i.e. at temperatures higher than 147 C.

The new composite materials have been produced by the group of Prof. T. Minami (Dept. of Applied Chemistry - University of Osaka Prefecture - Sakai) by fast melt quenching techniques. The so obtained a-phase of c-AgI is stable in the glass composite also at low temperature. It implies that a temperature dependent study on the a-phase can be performed in a wide T range [3]. In particular, some interesting anomalies have been recently shown by X-ray diffraction, heat capacity and conductivity measurements [4-5] in the range 200-350 K: aim of this EXAFS Project was to deeply study the local environment of Iodine atoms in this temperature range.

In Dec. 97 we have measured at the BM29, from 350K to 15K, the reference c-AgI in the P-phase, the a-AgI- containing composite 80AgI $15Ag_2O\,5B_2O_3$, and the pure glass matrix $65.3AgI\,26Ag_2O\,8.7B_2O_3$.
The good quality of the obtained EXAFS is documented in the next figure, where the spectra at 15 and 300K are plotted.



We are currently analyzing the experimental data using the cumulant expansion method, which allows to study thermal anharmonicity and non gaussian Radial distribution functions with great accuracy [6].
A whole report will be sent to ESRF as soon as the analysis will be finished.

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