| ESRF | **Experiment title:** CMR and the Electronic Structure of $La_{0.7}Sr_{0.3}MnO_3$ | **Experiment number:** HE 448 |
|---|---|---|
| **Beamline:** ID 15A | **Date of experiment:** from: 8/9/98 to: 15/9/98 | **Date of report:** 24/2/99 |
| **Shifts:** 21 10 unusable | **Local contact(s):** JE McCarthy | *Received at ESRF:* |


**Names and affiliations of applicants** (* indicates experimentalists):

| | |
|---|---|
| Dr T Jarlborg | University of Geneva |
| *Professor RN West | University of Texas at Arlington |
| *Professor MJ Cooper | University of Warwick |
| *Dr JA Duffy | University of Warwick |


**Report:**

The interplay between electrical, magnetic and lattice properties in determining the ground state is perhaps the key to understanding CMR materials. Magnetic Compton scattering probes the ground state spin density distribution and can therefore provide information about the "double exchange" interaction thought to be responsible for the magnetic and transport properties of these materials.

It was our intention to study $La_{0.7}Sr_{0.3}MnO_3$ at temperatures below and above the Curie temperature, which is 369 K, and for different crystallographic orientations. We also planned to study the material at low (0.1 T) and high (1.0 T) field where, of course, its electrical resistance changes markedly.