	Experiment title: Structure determination of three new metal-organic and one new germanate frameworks	**Experiment number**: 16-01- 712
Beamline: BM16	**Date of experiment**: from: 1/09/2008 to: 2/09/2008	**Date of report**: 25-08-2009
Shifts: 3	**Local contact(s)**: Ana LABRADOR Francisco Javier MARTINEZ-CASADO	*Received at ESRF:*

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Report:

The objective of this project was the structural determination of three new Europium-containing metal-organic frameworks (Eu-MOFs) and one germanate using single crystal diffraction.

In the case of the germanate, the quality of the data, due to the small crystal size and probably to the characteristics of the material, have precluded up to now determining the framework structure, although further efforts are being made nowadays in order to obtain, at least, a low resolution indication of the posible structure.

Regarding to the three Eu-MOFs, the good quality of the obtained data made possible their complete structure determination. For two of the materials, we found that their structures were similar to those earlier described for two Cu-containing MOFS, and we are now determining their properties and possible aplications.

The third Eu-MOF, denominated ITQMOF-3, resulted a completely new structure, and exhibits photoluminescent properties closely related to the characteristics of its structure; in this sense, this material can act as a linear pH sensor, due to the relative luminiscence of its

two Eu-sites depends on the pH of the medium, allowing the construction of miniaturized sensors that can work in biological media for biomedical applications. The results corresponding to this last MOF have been recently published in Angewandte Chemie International Edition. The full reference is:

Bogdan V. Harbuzaru, Avelino Corma, Fernando Rey, Jose L. Jordá, Duarte Ananias, Luis D. Carlos, João Rocha "Miniaturized Linear pH Sensor Based on a Highly Photoluminescent Self-Assembled Eu^{3+} - Metal Organic Framework" *Angewandte Chemie International Edition*, 48, (35), (2009), 6476-6479