



	Experiment title: Radioparagenesis: a novel synthesis route to obtain structures far from equilibrium	Experiment number: HS 4728
Beamline: ID09	Date of experiment: from: 11.02.2013 to: 12.03.2013	Date of report: 27.02.2013
Shifts: 3	Local contact(s): Michael Hanfland	<i>Received at ESRF:</i>
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Report:

We have measured the powder diffraction pattern of $^{55}\text{Fe}_2\text{O}_3$, contained in diamond anvil cells at pressures between 5 – 15 GPa, in order to detect the onset of radioparagenesis, where a new phase is expected to be formed by the decay of the ^{55}Fe into Mn.

The experiments have been performed on 11. February 2013, and therefore at the time of writing (27.02.2013) only a preliminary analysis is available. There seems to be no significant change of the lattice parameters. However, as only 15% of the total iron was ^{55}Fe , and as only a third of a half-life has passed, only 3% of the total iron had decayed into Mn at the time of the experiment. The preliminary analysis indicates that this is too little to be observable.

Further beam time is now requested for the end of 2013, where first indications of the decay product should be detectable.