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| Experiment title: Kinetics at the delta-ferrite to gamma-austenite phase transition in steel | Experiment number: MA-388 |
| Beamline: Date of experiment: from: 2007.09.09 to: 2007.09.13 | Date of report: 2023.09.19 |
| Shifts: 16 | Local contact(s): John Elliot Daniels <i>Received at ESRF:</i> |
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Report:

Mild ferritic steel has been heated in situ to 1723 K, close to melting temperature. Phse transformations can be seen from α -Fe through γ -Fe to δ -Fe. Moreover, grain coarsening is seen at advanced heating stages. Within the δ -Fe phase, the entire illuminated sample grows into a single crystal, which is distorted when cooling to the γ -Fe due to phase strain and lattice mismatch at the Kurdjumov-Sachs orientation relation. The process is repeatable upon cycling.

Presentations:

The data has been presented numerously in presentations on in-situ neutron and synchrotron studies.

Reference:

Thermec 2021: Metals Under Evolution – followed by synchrotron and neutron radiation, YouTube, <https://youtu.be/oMgvHZNNirA>

