


Session

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Paired garnet-clinopyroxene inclusions in diamonds – implications to the fate of subducted slab

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During crystallisation, a small proportion of diamonds (no more than 2%), captures tiny inclusions of other minerals. In rare cases, inclusions of different minerals are captured simultaneously. Here we propose to implement the Synchrotron Mössbauer Source (beamline ID14) in order to measure Fe³⁺/Fe²⁺ in paired garnet-clinopyroxene inclusions. These inclusions are of eclogitic origin meaning that at some point in time they were at the surface, and were later transported into the deep mantle by subduction. The study of these inclusions will permit us not only to identify the oxidation state of the upper mantle eclogitic rocks, but to also assess how oxidised is the material transported by subduction. This study will have important implications to the mantle rheology and transport properties as well as to mantle convection and material circulation by subduction

Experimental data

Data is under embargo until **2027** but could be released earlier. Currently, it is only accessible to proposal team members.

[Access data for experimental team](#)

Experimental report

The report for ES-1590 is confidential until the end of the data embargo period. Until then, it is only accessible to the proposers and session participants via the [ESRF User Portal](#).

Reference

Researchers must acknowledge the source of the data and cite its unique identifier as well as any publications linked to the same raw data.
Below is the recommended format for citing this work in a research publication.



Hutchison, M., Kiseeva, E., Liu, L., Ma, S., & Zhang, H. (2027). Paired garnet-clinopyroxene inclusions in diamonds – implications to the fate of subducted slab [Dataset]. European Synchrotron Radiation Facility.
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