

Seminario

The effects of fluids on geochronology

Tuesday, 24 March 2026 – 16:30, Aula Arduino

Relatore:

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In high temperature systems, reactions with fluid can result in resetting the formation age. Particularly for diamonds, where diamond formation age dating is done by analyses of its mineral inclusions, a fluid film at the interface of the mineral inclusion and diamond can result in resetting the age to kimberlite eruption ages during fast cooling upon ascent to the Earth's surface.

Here, I will showcase results from dating Iherzolitic inclusions in Victor diamonds and eclogitic and pyroxenitic inclusions in Premier diamonds as well as isotopic modelling. From these results, it is clear that Sm-Nd and Lu-Hf isotopic systems preserve diamond formation ages in garnet and clinopyroxene inclusions, whereas Rb-Sr and U-Pb in garnet are reset.

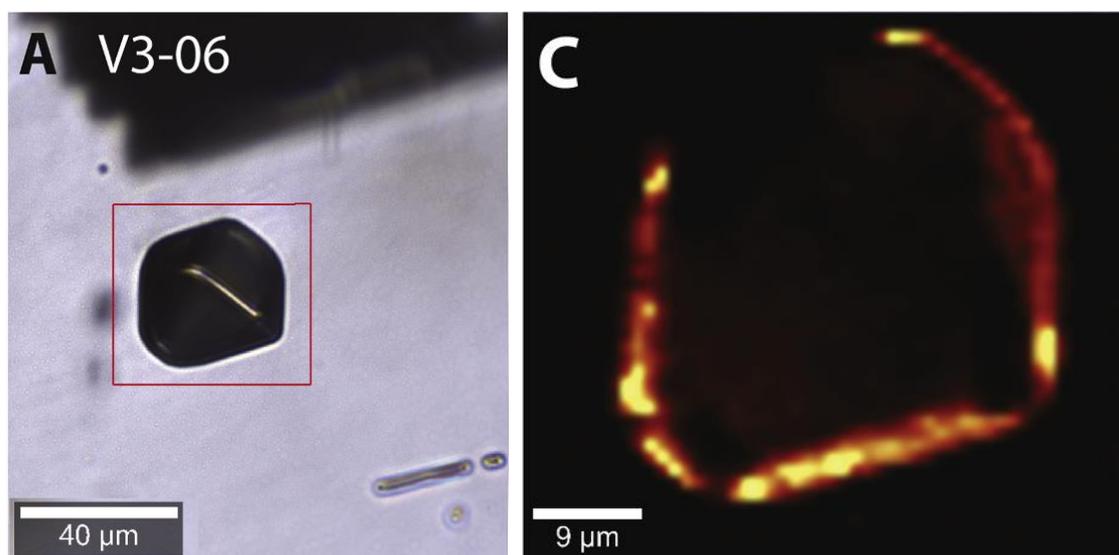


Fig.1: [left]: reflected light image of lherzolitic garnet inclusion in a diamond from Victor, Canada. [right]: 2D Raman map around the garnet inclusion shown in the left panel. The bright yellow-red intensity colors - surrounding the garnet inclusion - record a fluid film at the garnet-diamond interface. Modified after Timmerman et al. (2025) Earth & Planetary Science Letters, <https://doi.org/10.1016/j.epsl.2025.119635>.

Proponente: **Davide Novella**