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Origin of Refractory Metal Nuggets (RMNs): Did they precipitate from a CAI-liquid?

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Refractory Metal Nuggets (RMNs) mainly consist of Os, Ir, Ru, Mo and Pt together in a single nm- to μm sized alloy. In several studies (e.g. [1]) they were observed in Ca-Al-rich inclusions (CAIs) from Allende. While it is clear by now, that the CAIs have a complex history [2], information about the evolution of RMNs is very rare. However, the history of RMNs must be coupled to that of their host CAIs.

In CAIs from Acfer 094, Allende and Murchison we have identified a large number of RMNs sited in perovskite, melilite, spinel, fassaite and hibonite.

At the conference, we will discuss their evolution in light of our new observations. Based on their appearance, compositions and occurrence inside CAIs, we suggest precipitation as a possible formation scenario. Especially high abundance of RMNs inside CAIs with a clear melting texture, as well as their small sizes are hints in this direction.

[1] Fegley, B. & Kornacki, A.S., 1984. *EPSL* 68, 181–197. [2] MacPherson G. J., 2003. In: *Treatise on Geochemistry*. Elsevier, Amsterdam 201–246.

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