

# Abstract Submission

*T1 - Extraterrestrial mineralogy*

*Minerals under extraterrestrial conditions*

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## **A new anomalous LL7 chondrite from Sahara Desert: textural and chemical features**

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**Abstract Content:** Northwest Africa 14897 is a meteorite purchased in 2017 at Erfoud, Morocco. The main mass, weighing 262 g and owned by Abdeltif Mechaguen, is covered by a dark brown fusion crust. The type specimen, weighing 36 g, and one polished thin section is on deposit at MSN-Fi (Inv.# I3690); one polished section is at the University of Bari. A cut surface shows a dark brown, homogeneous interior. No metal spots are visible on the cut surface, probably due to the marked alteration. The thin section of the meteorite appears as a cataclastic breccia consisting of equilibrated chondritic clasts (mean size 1300  $\mu\text{m}$ ) composed by olivine and orthopyroxene set within a very fine similar matrix, with no chondrules. Recrystallized plagioclase grains are diffuse throughout the section, with a mean grain size of 150  $\mu\text{m}$  (n=25). Scattered augite grains are rarely observed. Iron oxides are the most common opaques. Accessory phases include tetrataenite, troilite, Ti-chromite, chlorapatite and merrillite. No kamacite nor taenite were detected. Subparallel veins of secondary calcite are visible. SEM-EDS maps provided the following modal estimate: 48% olivine, 25% low-ca pyroxene, 9% ca-pyroxene, 11% sodic plagioclase, 3% Fe-oxides, 0.6% chromite, 0.4 Cl-apatite, 3% calcite. EMPA analyses performed on selected phases provided the following results: OI ( $\text{Fa}_{31.5\pm 0.3}$ , N = 8; Fe/Mn = 64.3), Opx ( $\text{Fs}_{23.4\pm 0.3}$   $\text{Wo}_{3.3\pm 0.1}$ , N = 4; Fe/Mn = 30.4), Aug ( $\text{Fs}_{11.0\pm 0.5}$   $\text{Wo}_{40.7\pm 1.2}$ , N = 11;  $\text{Cr}_2\text{O}_3 = 1.2$  wt.%), Plg ( $\text{Ab}_{82.3}$   $\text{An}_{15.6}$   $\text{Or}_{2.1}$ , N = 3); chromite is Ti and Al rich. Shock stage is low (S1), while the weathering is marked (W4). A classification as LL7 ordinary chondrite has been proposed based on texture and chemistry.

**References:**

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**Disclosure of Interest:** None Declared