

MARTIAN METEORITES THROUGH THE LENS OF MAGNETIC PROPERTIES AND NEW FINDINGS

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Most martian meteorites are weakly magnetic [1] at odds with the fact that the martian regolith is strongly magnetic and that crustal magnetization (at least for Noachian) is also exceptionally strong. As of 2005 only a handful of nakhlites and shergottites (basaltic or olivine phyric) had the necessary magnetization to fit Noachian crustal values. However, subsequent findings have widened the typology of strongly magnetic martian meteorites, with metal bearing chassignite NWA2737 [2] and the new lithologies of NWA7034 [3] and NWA8159 [4]. The inventory of strongly magnetic nakhlites has very recently increased with NWA5790 [5], NWA 10153/10659 [6] and Caleta el Cobre 022. We will present the first description of this just declared nakhlite from Atacama that contains about 4 wt.% of substituted magnetite. We will discuss what does magnetite amount and petrography tells us about the nakhlite pile, and more generally about the petrogenesis of magnetite-rich martian meteorites.

References: [1] Rochette P. et al. , 2005, *Meteorit. Planet. Sci.*, 40, 529-540. [2] Van de Moortèle B., B. Reynard, P. Rochette, M. Jackson, P. Beck et al. 2007. *Earth and Planetary Science Letters* 262, 37-49. [3] Gattacceca, J et al., 2014, *Geophys. Res. Lett.*, 41, doi:10.1002/2014GL060464. [4] Herd C.D.K et al. 2017, *Geochimica et Cosmochimica Acta* 218, 1-26 [5] Jambon, A. et al. 2016. *Geochimica et Cosmochimica Acta* , 190, 191-212. [6] Hicks L.J. et al. 2016. 79th Met.Soc. meeting abstract #6421.