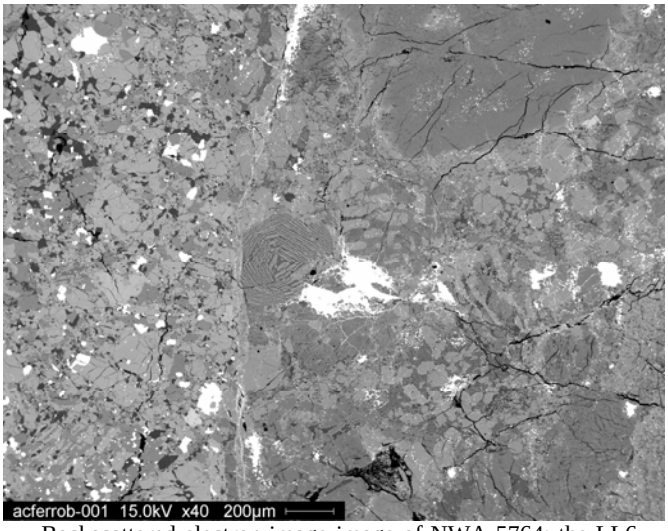
NWA 5764: THE FIRST LL-L CHONDRITE. J. Gattacceca[1], M. Bourot-Denise[2], R. Lenssen[3]. [1]CEREGE, CNRS/Aix-Marseille University, France ; gattacceca@cerege.fr [2]MNHN, Paris [3] rlenssen@planet.nl

Although a large number of ordinary chondrites are brecciated, it is very uncommon to find in an ordinary chondrite clasts from a different ordinary group [1]. In the rare cases where this was observed, the volume abundance of such foreign ordinary clasts in ordinary chondrites is about 1% at most and these clasts are generally infracentimetric [2-4].

We describe here NWA 5764, a single 502 g stone which is an ordinary chondrite breccia constituted by two contrasted lithologies: LL6 (Fa 31.53±0.64, Fs 26.54+0.44) and L4 (Fa 25.58+0.53, Fs 22.2+0.31). The LL6 lithology is itself a dark/light LL breccia and makes up the groundmass of the meteorite. The remarkable feature is the presence of dark L clasts that are several centimeters in size, and cover 30 % of the surface of the 20 g type specimen.

Magnetic susceptibility, $\log\chi$=4.20 (χ in 10^{-9} m^3kg^{-1}) is clearly in the very upper range for LL6 chondrite ($\log\chi$=3.95±0.23, based on 19 falls [5]), and above the range for LL finds if one takes into account weathering (W1, with an expected decrease of magnetic susceptibility of ~0.1 [5]). This is in agreement with mixing of LL material with material richer in metal (L falls have $\log\chi$=4.87+0.10 [5]).

The dark color of the L4 clasts is due to ubiquitous darkening of the silicates by sulfides, even in chondrule mesostasis. However, the shock level is the same in the two lithologies (S3, evidenced by the widespread occurrence of planar fractures in olivine).



Backscattered electron image image of NWA 5764: the LL6 lithology (left) and the L4 lithology (right) are separated by a ~20 µm vein filled with metal and sulfide.

References: [1] Bischoff et al., 2006. in *Meteorites and the Early Solar Sytem II*: 679-712. [2] Rubin et al., 1983. *JGR* 88:A174-754. [3] Bischoff et al., 1993. *MAPS* 28:570-578. [4] Wieler et al., 1989. *GCA* 53:1449-1459 [5] Rochette et al., 2003. *MAPS* 38:251-268.