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The Braunschweig meteorite (fall 2013, L6 chondrite): Moessbauer and Raman spectroscopy

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A new meteorite fall including a fireball was reported at April 23rd, 2013 in Braunschweig, N Germany. The meteorite with a total mass of 1300 gr was classified as an L6 ordinary chondrite [1]. Main matrix phases are olivine (with about 25mol% fayalite), pyroxene (ferrosilite about 21mol%, wollastonite about 1.6mol%), kamacite, troilite and feldspar (plagioclase). Magnetic susceptibility was determined to 4.79 (log spec. MS 10^{-9}) on a 1.35 gr fragment, and to 4.76 on interior fragments, both values are slightly lower than the typical L6 MS range. The shock stage can be determined by Raman Spectroscopy (on plagioclase) to about S1-2 in generally, some areas underwent higher peak shocks. Moessbauer Spectroscopy revealed typical ordinary chondrite pattern such as two sextets (kamacite/taenite, troilite), and two doublets (olivine and pyroxene).

References: [1] Meteorite Braunschweig, in: Meteor. Bull. Database 10/2015. [2] 6th German Meteorite Colloquium, April 2014, Braunschweig.

Cite abstract as:
Hochleitner , R.H., Hoffmann, V.H., Kaliwoda, M., et al., (2015) The Braunschweig meteorite (fall 2013, L6 chondrite: Moessbauer and Raman spectroscopy.. Paneth Kolloquium, Nördlingen (Germany), abstract URL: http://www.paneth.eu/PanethKolloquium/2015/0028.pdf (abstract #0028).