A NEW CM 2 CARBONACEOUS CHONDRITE – METEORITE FALL IN INDIA (2017). V.H. Hoffmann[1,2], P. Schmitt-Kopplin[3,4], K. Wimmer[5], R. Hochleitner[6], M. Kaliwoda[6]. [1]Faculty Geosciences, Dep. Geo- and Environmental Sciences, Univ. Munich, [2]Dep. Geosciences, Univ. Tübingen, Germany; [3]Research Unit Analytical BioGeoChemistry, Helmholtz Zentrum München; [4]Analytical Food Chemistry, TU München, Germany; [5]Ries Crater Museum, Nördlingen, Germany; [6]Mineralogical State Collection, Munich, Germany. Email contact: hoffmannvh@web.de

Introduction: In 2017, a new meteorite fall was reported from the Jaipur region, India [1-3, and refs.]. Directly after the fall, meteorite fragments of about 2 kg in mass have been collected. Macroscopic description and further analyses of the fragments classified the stone as a CM 2 carbonaceous chondrite [1-3, and refs.].

Investigations and results: We have obtained 3 samples from this new meteorite, 5.40, 0.70 and 0.14 grs in weight, respectively, for our studies. The two larger fragments have been used for the magnetic classification (MagSus X): magnetic susceptibility values were found to be 3.45 and 3.47 (specific magnetic susceptibility in log X 10^{-9} m^3/kg), average MagSus value is therefore 3.46. Based on our MagSus results Mukundpura can be classified as a CM 2 carbonaceous chondrite, laying on the lowermost scale of the MagSus value range for CM [4-7].
Based on Raman Spectroscopy and optical microscopy, the following common matrix phases could be identified: olivine (various compositions, near forsterite), pyroxene (mainly OPX), carbon - phases (various), Fe - sulfides (mainly troilite), Fe - oxides (mainly magnetite, rare chromite). More rare phases found are: pyroxene (CPX), carbonate (mainly calcite), refractory inclusions (CAI), metal (Fe-Ni) and some presently unidentified phases.

The composition is typical for a CM 2 – like carbonaceous chondrite. Mukundpura is characterized by a relatively low shock degree. More details are found in our poster contribution.

References: [1] Ray D., Shukla A.D., 2017. Planet. Space Sci., 10.1016/j.pss.2017.11.005. [2] Government and Geological Survey of India, Western Region, Jaipur, 2017. Mukundpura Meteorite Fall, Internal Report. [3] N.G. Rudraswami N. G., et al., 2018. Geoscience Frontiers, https://doi.org/10.1016/ j.gsf.2018.02.001. [4] Hoffmann V.H., et al., 2018. LPSC Conf., # 2315. [5] Hoffmann V.H., et al., 2017. Hayabusa Conference, NIPR / Tokyo. [6] Rochette P., et al., 2008. Meteorit. Planet. Sci. 43, 959–980. [7] Macke R.J., 2010. PhD Thesis, Univ. Central Florida, Orlando, 332 pp.