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Cloppenburg (H4-5) – first results of a new find

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The Cloppenburg meteorite of 141 g was found March 15, 2017 by the facility manager of a school while collecting rocks for the school garden. The rock with a mean density of $(3.33 \pm 0.03) \text{ g/cm}^3$ is a brecciated H-group ordinary chondrite (H4-5) with mean olivine and low-Ca pyroxene of $\text{Fa}_{18.5 \pm 0.3}$ and $\text{Fs}_{16.4 \pm 0.6}$, respectively. The breccia containing shock veins is weakly shocked (S3) and heavily weathered (W3). The occurrence of vivianite, the oxygen isotopes, and the Ba-enrichment (by INAA) indicate strong weathering in a very wet environment. Radionuclide data evaluation is still ongoing: Accelerator mass spectrometry (AMS) of ^{14}C , will reveal the terrestrial age. An upper limit of the terrestrial age is yet set by low-level gamma-spectrometry in the Felsenkeller underground lab. No ^{22}Na ($t_{1/2}=2.6 \text{ a}$) nor ^{44}Ti ($t_{1/2}=59 \text{ a}$) could be detected within a counting time of 27 days, whereas ^{26}Al ($t_{1/2}=0.7 \text{ Ma}$) was clearly identified. AMS of ^{10}Be ($t_{1/2}=1.4 \text{ Ma}$) of $\sim 18 \text{ dpm/kg}$ confirms the cosmic ray exposure age (CRE age) of $(7.5 \pm 0.4) \text{ Ma}$ from noble gas mass spectrometry.

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