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Deuterium cluster model for low energy nuclear reactions (LENR) GEORGE MILEY, Dept. NPRE, Univ of Illinois, Urbana-Champaign, HEINRICH HORA, Dept. Theoret. Phys.. Univ. New South Wales, Sydney, Australia — For studying the possible reactions of high density deuterons on the background of a degenerate electron gas, a summary of experimental observations resulted in the possibility of reactions in pm distance and more than ksec duration similar to the K-shell electron capture [1]. The essential reason was the screening of the deuterons by a factor of 14 based on the observations. Using the bosonic properties for a cluster formation of the deuterons and a model of compound nuclear reactions [2], the measured distribution of the resulting nuclei may be explained as known from the Maruhn-Greiner theory for fission. The local maximum of the distribution at the main minimum indicates the excited states of the compound nuclei during their intermediary state. This measured local maximum may be an independent proof for the deuteron clusters at LENR.
[1] H. Hora, G.H. Miley et al. Physics Letters A175, 138 (1993)
[2] H. Hora and G.H. Miley, APS March Meeting 2007, Program p. 116

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