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[122] Nature of $\text{Ba}_3\text{Mlr}_2\text{O}_9$ ($M=\text{Sc},\text{Y},\text{In}$) ground state probed by μSR .

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The $\text{Ba}_3\text{Mlr}_2\text{O}_9$ family offers a tremendous playground to study the influence of spin orbit coupling (SOC) in the stabilization of a spin liquid ground state. We present here the zero field μSR study of the $J = 1/2$ compounds ($M=\text{Y},\text{Sc},\text{In}$) synthesized in the 6H lattice.

For the Y and Sc ones we found an homogeneous ordered ground state, with transitions at 4.5 K and 10 K respectively, as expected. Interestingly, for the In one, we found no sign of frozen magnetism down to 20 mK which could be the sign of a spin liquid ground state. Our study then rises questions about the different interactions in those compounds.

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