

Abstract Submitted  
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**Muon spin rotation study of spin dimers on a triangular lattice in Ba<sub>3</sub>MRu<sub>2</sub>O<sub>9</sub>.** DJAMEL ZIAT, AIM VERRIER, Graduate student, JEFFREY QUILLIAM, Professor, ADAM ACZEL, RYAN SINCLAIR, QIANG CHEN, HAIDONG ZHOU, PhD — The family of hexagonal perovskites, Ba<sub>3</sub>MA<sub>2</sub>O<sub>9</sub> has recently been proven to be fertile ground for the discovery of new, exotic magnetic phases, including several quantum spin liquid candidates. The 6H-perovskites can also accommodate spin dimers on a triangular lattice, as in the ruthenate materials Ba<sub>3</sub>MRu<sub>2</sub>O<sub>9</sub>. We will present measurements on materials containing M<sup>3+</sup> (M = Y, La, Lu, In), which give rise to mixed valence Ru<sup>4.5+</sup> ions wherein the orbital and charge degrees of freedom must also be considered. In particular, muon spin rotation (SR) experiments, have allowed us to probe the nature of the magnetically ordered ground state of these materials at low temperatures.

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