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Synthesis and structural characterization of geometrically frustrated double perovskites[1] CONNOR WILLIAMS, DEMETRIOS PAPAKOSTAS, JEREMY P. CARLO, Villanova University — In geometrically frustrated materials, magnetic order is inhibited by the arrangement of magnetic ions. Typically seen with triangular or tetrahedrally coordinated moments favoring antiparallel (antiferromagnetic) alignment, frustrated materials exhibit a variety of magnetic ground states due to the cancellation of normally dominant interactions, providing a window into exotic physics. Double perovskites of composition $A_2BB\prime O_6$, with 'rock-salt' order of magnetic B' ions, potentially exhibit frustration. Further, the chemical versatility of perovskites enables synthesis of compounds with divergent properties, with great potential to yield new insights into frustration physics. We report the solid-state synthesis and x-ray structural characterization of Ba_2YbMoO_6, Ba_2YWO_6, Ba_2LuWO_6, Ba_2ScMoO_6, and Sr_2ScMoO_6. All but the latter crystallize in the ideal cubic *Fm-3m* double perovskite structure, while Sr_2ScMoO_6 was refined in the tetragonal *I4/m* space group, consistent with their respective Goldschmidt tolerance factors.

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