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Geometrical frustrated magnetism in spin-chain oxides crystallizing in K_4CdCl_6 -type rhombohedral structure

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We have been investigating a novel class of oxide systems of the type $(Ca,Sr)_3XYO_6$, (X,Y = transition metal ions) crystallizing in K_4CdCl_6 -type rhombohedral structure, in which the spin-chains are arranged in a triangular fashion in the basal plane. In many cases, the intrachain interaction is ferromagnetic. As a result of interchain antiferromagnetic interaction, a variety of novel magnetic features attributable to geometrically frustrated magnetism are observed in this family of oxides. A overview of our important results will be given. Specific attention will be paid to Sr_3NiRhO_6 , in which intrachain interaction appears to be antiferromagnetic in contrast to the behavior in family, whereas Sr_3NiPtO_6 behaves like a spin-liquid – a phenomenon so common among $S=1$ systems.