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**Octupolar order in the multiple spin exchange model on a triangular lattice** TSUTOMU MOMOI, Condensed Matter Theory Laboratory, RIKEN, Japan, PHILIPPE SINDZINGRE, LPTMC, UMR 7600 of CNRS, Universite P. et M. Curie, France, NIC SHANNON, H. H. Wills Physics Laboratory, University of Bristol, UK — We showed how a gapless spin liquid with hidden octupolar order arises in applied magnetic field, in a model applicable to thin films of solid  $^3\text{He}$  with competing ferromagnetic and antiferromagnetic (cyclic) exchange interactions. In this, dynamical effects lead to the formation of three-magnon bound states, which undergo Bose-Einstein condensation, giving rise to octupolar order. We confirmed its existence through the exact diagonalization of finite-size clusters. We also presented evidence for nematic – i.e. quadrupolar – correlations bordering on ferromagnetism in the absence of magnetic field.

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