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Crystals of new spin ice materials MONICA CIOMAGA HATNEAN, Department of Physics, University of Warwick, UK, ROMAIN SIBILLE, MICHEL KENZELMANN, Laboratory for Scientific Developments and Novel Materials, PSI, Switzerland, SYLVAIN PETIT, LLB, CEA-Saclay, France, ELSA LHOTEL, Institut Neel, Grenoble, France, CLAUDIA DECORSE, SP2M-ICMMO, Universite Paris-Sud, Orsay, France, MARTIN R. LEES, OLEG A. PETRENKO, GEETHA BALAKRISHNAN, Department of Physics, University of Warwick, UK — Significant progress has been made in the past in the study of geometrically frustrated magnets due to the availability of large, high quality single crystals of rare earth titanate and molybdate pyrochlore oxides. These materials have been studied in great detail and yet their fascinating magnetic properties (such as spin ice/spin glass/spin liquid behaviour or long-range magnetic ordered states) continue to puzzle researchers. One of the most exciting avenues of future research is into systems which exhibit novel magnetic ground states, such as quantum spin liquid and quantum spin ice. As the search for frustrated magnets that display quantum effects widens, the research community has turned its attention to less studied pyrochlore systems, such as rare earth zirconates and hafnates $R_2M_2O_7$ (R = Rare Earth, M = Zr or Hf). Recent advances in the crystal growth of rare earth zirconates and hafnates have opened up a route to further investigations of these two novel classes of pyrochlore magnets. We present the recent developments in the synthesis of large high quality crystals of these new frustrated pyrochlore magnets and discuss briefly the interest in their magnetic properties.

Monica Ciomaga Hatnean
Department of Physics, University of Warwick

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