

# Magnetic order, slow dynamics and possible magnetic fragmentation in rare earth spinels $\text{CdYb}_2\text{S}_4$ and $\text{CdYb}_2\text{Se}_4$

P. Dalmas de Réotier<sup>a\*</sup>, A. Yaouanc<sup>a</sup>, C. Ritter<sup>b</sup>, A. Maisuradze,<sup>c</sup> B. Roessli,<sup>d</sup>  
A. Bertin,<sup>a</sup> P.J. Baker,<sup>e</sup> and A. Amato<sup>f</sup>

- a. Université Grenoble Alpes and CEA, Institut Nanosciences et Cryogénie, Pheligs, F-38000 Grenoble, France
- b. Institut Laue Langevin, F-38042 Grenoble cedex 9, France
- c. Tbilisi State University, Department of Physics, GE-0128 Tbilisi, Georgia
- d. Paul Scherrer Institute, Laboratory for Neutron Scattering and Imaging, CH-5232 Villigen-PSI, Switzerland
- e. STFC Rutherford Appleton Laboratory, ISIS facility, Chilton, OX11 0QX. United Kingdom
- f. Paul Scherrer Institute, Laboratory for Muon-Spin Spectroscopy, CH-5232 Villigen-PSI, Switzerland

\* pierre.dalmas-de-reotier@cea.fr

For the last two decades, geometrically frustrated magnetism has been an active field of condensed matter research which has unveiled new concepts in the physics of interacting systems. The pyrochlore series of compounds has been at the forefront of the activity in the domain. Here we report on a study of the spinels  $\text{CdYb}_2\text{S}_4$  and  $\text{CdYb}_2\text{Se}_4$  [1] in which the  $\text{Yb}^{3+}$  rare earth ions sit at the same sublattice of corner-sharing regular tetrahedra as in the pyrochlores. The difference in the local environment of the rare earth ions in the pyrochlores and spinels gives a new perspective that we illustrate by a discussion of the magnetic order, slow dynamics and possible magnetic fragmentation found for these two spinels.

[1] P. Dalmas de Réotier *et al*, Phys. Rev. B **96**, 134403 (2017).