FMW-2025
Workshop Magnétisme frustré

30 Juin - 2 Juillet 2025

Amphithéâtre Hermite
Institut Henri Poincaré
11, rue Pierre et Marie Curie
75231 Paris Cedex 05

Paul Sérusier, *Tétraèdres*, vers 1910, huile sur toile, Musée d'Orsay

13:30 On site registration

14:00-14:30 Introduction

Session I, chair Laura Messio

14:30 F. Bert[1,*], D. Chatterjee[1,2], E Kermarrec[1], P. Mendels[1], K.M. Zoch[3], P. Puphal[4]: *Enhanced frustration in the anisotropic kagome compound Y-Kapellasite by external pressure*

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$Y_3Cu_9(OH)_{19}Cl_8$ realizes an anisotropic kagome model with 3 different nearest neighbor interactions, yielding a rich phase diagram [1]. Besides two long range ordered phases, this phase diagram features a large spin liquid area, which encompasses the isotropic kagome model. Noticeably the large difference in the Y and Cu radii prevents inter-site mixing and the anisotropic kagome planes are free from magnetic defects. We present a detailed investigation of large, phase pure, single crystals of this compound by neutron scattering, and local μSR and NMR techniques [2]. At variance with polycrystalline samples, the study of single crystals gives evidence for subtle structural instabilities at 33 and 13 K and a bulk magnetic transition at 2.1 K, well below the antiferromagnetic 100 K Weiss temperature. The structural instabilities involve the localization of one inter-layer proton and, importantly, preserve the kagome planes. At 2.1 K the compound shows a magnetic transition to the coplanar (1/3,1/3) long-range order as predicted theoretically. However, our analysis of the spin-wave excitations yields an estimate of magnetic interactions, which locate the compound closer to the phase boundary to the spin-liquid phase than expected from ab initio calculations. Enhanced quantum fluctuations at this boundary may be responsible for the reduced ordered moment of the Cu^{2+} and hint at a strong effect of external perturbations. Indeed, in recent μSR experiment under pressure [3], we could establish that the fragile long range order is suppressed in favor of a fluctuating ground state with a moderate 23 kbar applied pressure. This finding is rationalized by high pressure diffraction results showing a tendency towards a more isotropic lattice in the same range of applied pressures.

References:

[1] M.Hering et al, *npj Comput Mater*, **8**, 10 (2022)
[2] D.Chatterjee et al, *Phys. Rev. B*, **107**, 125156 (2023)
[3] D. Chatterjee et al, *arXiv:2502.09733*

15:15 Natalie Guihéry [1,*]: *Some possible contributions of theoretical chemistry to strongly correlated materials: the example of Herbertsmithite*

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This presentation aims to show what quantum chemistry can contribute to the study of strongly correlated materials. We will show how the embedded fragments method combined with relativistic and correlated ab initio calculations can be used to determine isotropic and anisotropic magnetic interactions. This practice will be illustrated on Herbertsmithite, a material known as a S=1/2 first-neighbor Heisenberg antiferromagnet on the Kagomé lattice. This material is theoretically supposed to be a spin liquid with no quantum gap. Several recent experiments have revealed deviations from the ideal model. This detailed ab initio study enabled us to quantify all important magnetic interactions and to identify two deviations that have never been calculated before: anisotropic exchange interactions and Heisenberg exchange with extra-plane magnetic impurities.

16:00 Coffee Break

16:30 M. E. Zhitomirsky [1,*]: *Fractional topological excitations in the Heisenberg kagome antiferromagnet*

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The classical Heisenberg antiferromagnet on a kagome lattice has attracted attention since the early 1990s [1,2]. This frustrated model is realized in several magnetic materials [3,4]. Additionally, it serves as a paradigmatic example of the order by disorder effect. We present new Monte Carlo results for the kagome antiferromagnet on periodic lattices with N = $3L^2$ spins and linear dimensions up to L = 180 [5]. By studying unprecedentedly large spin clusters, we have resolved an anomaly in the specific heat at $T^*/J \sim 0.002$. This anomaly is related to the Kosterlitz-Thouless transition in the XXZ spin model with weak planar anisotropy. We attribute the anomaly at T^* to the proliferation of fractional vortices, see Fig. 1, which exist in the kagome antiferromagnet even in the isotropic Heisenberg limit.

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[4] B. Fåk, F. C. Coomer, A. Harrison, D. Visser, and M. E. Zhitomirsky, Spin-liquid behavior in a kagome antiferromagnet: deuteronium jarosite, *Europhys. Lett.* **81**, 17006 (2008).
[5] M. E. Zhitomirsky, *e-print arXiv* (2025).

17:15 Nicolas Rougemaille[1,*]: *Artificial frustrated 2D magnets*

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Artificially made, geometrically frustrated arrays of interacting magnetic nanostructures offer a remarkable playground for exploring spin ice physics experimentally [1-3]. Initially designed to capture the low-energy properties of highly frustrated magnets [4,5], artificial spin ices became in the past decade a powerful lab-on-chip platform in which to investigate cooperative magnetic phenomena and exotic states of matter. Since their introduction about twenty years ago, the interest in artificial spin ices largely broadened, and the term now covers a wide range of physical phenomena and systems extending well beyond artificial ice-like magnets. Besides fundamental works, many studies were also conducted recently on the applicability of artificial spin ice geometries in magnetic architectures, in which the micromagnetic degree of freedom, spin wave excitations or topological magnetic pseudo-charges for example are envisioned as carriers for information transfer, storage and processing [6-8]. The richness of this fast evolving research field is certainly the variety of expertises and scientific backgrounds gathered within a single community, with scientists working in different, sometimes separated, areas of condensed matter magnetism, spreading from nanomagnetism and spintronics to frustrated magnetism and statistical mechanics. In this presentation, recent works we have conducted in the field will be overviewed.

References:

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[2] N. Rougemaille and B. Canals, *Eur. Phys. J. B* **92**, 62 (2019)
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[4] M. Tanaka et al., *Phys. Rev. B* **73**, 052411 (2006)
[5] R. F. Wang et al., *Nature* **439**, 303 (2006)
[6] S. Gliga, E. Iacocca and O. G. Heinonen, *APL Mater.* **8**, 040911 (2020)
[7] M. T. Kaffash et al., *Phys. Lett. A* **402**, 127364 (2021)
[8] J. C. Gartside et al., *Nat. Nanotech.* **17**, 460 (2022)

Session II, Chair Elsa Lhotel

9:00 Pierre Pujol[1,*]: *On the classification of classical spin liquids in 2 and 3 dimensions*

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In the continuation of a proposal initiated by C. L. Henley in 2005 and revived by O. Benton and R. Moessner in 2021, we propose a general approach to study and classify classical spin liquids. Those systems are supposed to be reluctant to order even at zero temperature, unless a phenomenon of Order By Disorder (OBD) takes place. If the system remains disordered, at zero temperature, and because of an extensive degeneracy, correlations can be algebraic (indicating the presence of an emergent gauge field) or exponentially decaying. Within our approach, from the nature of the lattice, one can predict and provide general statements about the kind of spin liquid one can expect, and, in some cases, provide a topological classification of short range spin liquids.

References:

[1] Naïmo Davier, Flavia Alejandra Gòmez Albarracìn, Hector Diego Rosales, Pierre Pujol, *Phys. Rev. B*, **108**, 054408 (2023)

9:45 Ludovic Jaubert [1,*], Han Yan[2], Owen Benton[3], Nic Shannon[4], Naïmo Davier[1], Flavia Gómez Albarracìn [5], Diego Rosales [5], Pierre Pujol [6]: *A review about higher-rank spin liquids*

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Spin liquids form fluctuating magnetic textures which have to obey certain rules imposed by frustration. These rules can often be written in the form of a Gauss law, indicating the local conservation of an emergent electric field. In reciprocal space, these emergent Gauss laws appear as singularities known as pinch points, that are accessible to neutron-scattering measurements. But the beauty of emergent phenomena is that they are not limited to our natural intuition. More exotic forms of electromagnetism have been stabilised in spin liquids, where the electric field takes the form of a matrix [1] and the charge becomes a vector. In this talk, we will give a brief overview of higher-rank spin liquids, from the early works by Pretko and collaborators related to fractons [2], to the recent classification of classical spin liquids that has allowed for the discovery of a plethora of higherrank spin liquids in frustrated models [3,4,5]. We will show how they are defined microscopically, discuss their properties, their connection to fractonic matter, and how they could be recognised in neutron scattering experiments. We will conclude on how to design layered spin liquids in order to extend the pinch point singularity into pinch lines [6].

References:

[1] H. Yan et al, *Phys. Rev. Lett.* **124**, 127203 (2020)
[2] M. Pretko, *Phys. Rev. B* **96**, 035119 (2017)
[3] O. Benton and R. Moessner, *Phys. Rev. Lett.* **127**, 107202 (2021)
[4] N. Davier et al, *Phys. Rev. B*108, 054408 (2023)
[5] H. Yan et al, *Phys. Rev. B* 110, L020402 (2024
[6] N. Davier et al, *arXiv:2502.16978*

11:00 Olivier Mentré [1,*]: *Chemical Prospection for frustrated compounds: some exotic layered -compounds, using various polyanions as 2D-spacers*

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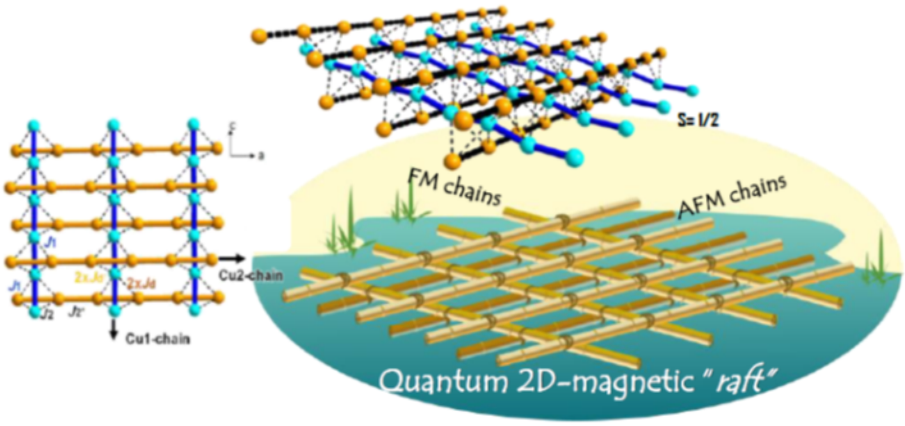
Here, we will discuss several examples of inorganic compounds, in which the combination of mixed anions F^-, OH^- /O_2^- and/or polyanions (PO_4^{3-}, SeO_3^{2-}, ...) tailors exotic structural edifices built of various transition metal ions (for instance S= $1/2$ Cu^{2+} and Ti^{3+}). In the provided examples, the prominent structural bidimensional character features pretty complex examples of frustrated lattices, with enhanced spin-fluctuation. A recent example concerns the evidence of crossed FM and AFM chains into 2D blocks, labelled as "magnetic raft" in the $Cu_3Te_2O_9H_4$ compound [1].



A particular interest will be particularly given to sub-kelvin measurements (when available), to distinguish the existence or proximity with quantum-spin-liquid (QSL) states. The chemical prospection for such geometrically frustrated magnets capable of hosting a QSL states represents an interesting field of research, providing original magnetic topologies and alternative material-platforms, besides the already well-studied cases.

References:

[1] T. Zhu et al., *Chem. Mater.* **35**, 3743 (2023)

11:45 Manila Songvilay[1,*]: *Investigating Kitaev interactions in Co honeycomb antiferromagnets*

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The recent Kitaev model (2006) provides an exact model to achieve a quantum spin liquid ground state in a 2D honeycomb lattice system through Ising-like bond-dependent interactions [1]. While first considered as a toy model, a theoretical work from Jackeli and Khaliullin has paved the way towards the realization of Kitaev physics in bulk materials. They first showed that bond-dependent interactions can be achieved through the interplay between crystal field, spin-orbit coupling and bond geometry using 4d and 5d transition metal ions, that exhibit a strong spin-orbit coupling [2]. Since then, a significant amount of experimental works have focused on iridate and ruthenate compounds to find suitable candidate materials. Co^{2+} ions have been recently put forward for realising Kitaev interactions [3,4,5], a prediction we have tested by investigating the magnetic properties and spin dynamics in several cobalt honeycomb lattice compounds [6]. In particular, the ground state and Hamiltonian of the honeycomb lattice material $BaCo_2(AsO_4)_2$ hosting magnetic Co^{2+}, have been debated for decades [7,8]. To investigate the relevance of bond-dependent Kitaev-like interactions in this material, we have combined magnetization, ac-susceptibility and neutron scattering measurements on a $BaCo_2(AsO_4)_2$ single-crystal, together with advanced modeling. Our experimental results highlight a collinear magnetic ground state with intrinsic disorder associated to an average incommensurate propagation vector. Monte Carlo simulations and linear spin wave calculations were performed to obtain a spin model compatible with this unusual ground state, the dispersion of magnetic excitations and a magnetization plateau under magnetic field. We thus show that bond-dependent anisotropic interactions, including Kitaev-like interactions, are necessary to account for the puzzling properties of this long-explored material, and are hence a general ingredient in the cobaltates [9].

References:
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[9] A. Devillez, et al. *arXiv:2503.22300* (2025)

12:30 Lunch Break

Session III, Chair Nicolas Laflorencie

14:00 Mathieu Mambrini[1,*]: *Tensor network approach to SU(N)-symmetric antiferromagnets*

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Projected Entangled Pair States (PEPS) are variational ansätze constructed from a few local tensors aiming to go beyond Density Matrix Renormalization Group (DMRG) methods in 2D. This framework is therefore particularly well-suited to the study of 2D (frustrated) SU(N)-symmetric antiferromagnets. As the role of broken/unbroken symmetries is essential for characterizing the low energy states of such systems, I will show how discrete (point group) and continuous symmetries can be implemented at a local (tensor) level in the PEPS framework. This construction makes it possible to design wavefunctionmanifolds with controlled broken/unbroken symmetries [1] while considerably reducing th number of free parameters.It is not only useful for engineering particular states (such as chiral spin liquids [2,3,4]), but also for ground-state optimization procedures for a given Hamiltonian [5,6,7], for studying thermodynamic properties [8] or for investigating the real-time dynamics of quenched 2d quantum systems [9,10,11]. In this talk, I will explain the main ideas behind this construction and illustrate it with a few recent examples.

14:45 Pierre Nataf[1,*]: *Phase Transitions in SU(N) Fermi-Hubbard models*

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Systems of multicolor fermions have recently raised considerable interest due to the possibility to experimentally study those systems on optical lattices with ultracold atoms [1]. To describe the Mott insulating phase of N-colors fermions, one can start with the $\mathrm{SU}(N)$ Fermi-Hubbard Model (FHM) (which encompass the standard Fermi-Hubbard model for electrons with spins $1/2$ which corresponds to $N = 2$ [2]).The theoretical description of such a model is however challenging due to the huge dimension of the Hilbert space, scaling as 2 at the power NL, where L is the number of sites. We found a way to *easily* implement the $\mathrm{SU}(N)$ symmetry in $\mathrm{SU}(N)$ FHM on L-sites clusters in order to work separately in each irreducible representation (*irrep*) of $\mathrm{SU}(N)$. This leads to a dramatic reduction of the dimension of the matrices to diagonalize in exact diagonalization (ED) [3] and in an effective larger bond dimension in Density Matrix Renormalization Group (DMRG) [4]. As an application of this color factorization, we study the robustness of some $\mathrm{SU}(N)$ phases predicted in the Heisenberg limit upon decreasing the on-site interaction on various two-dimensional lattices. In particular, we show that a long range color ordered phase emerges for intermediate U for N=4 at filling $1/4$ on the triangular lattice [3]. We present the numerical observation of the $\mathrm{SU}(N)$ Nagaoka's Ferromagnetism[5] in the presence of one hole away from filling $1/N$ [6]. By numerically investigating the Mott-Insulator transition in the one-dimensional chain at filling $1/N$, we prove that the metallic phase is finite for $N > 2$ and positive on-site interaction [4]. Finally, focusing on $L = 2$, we give the exact Bethe ansatz solution and we study the quantum phase transition (QPT) occurring in the Large-N limit [7] which is reminiscent of the QPT in the Lipkin Meshkov Glick (LMG) [8] model.

References:
[1] C. Wu, J.-P. Hu, and S.-C. Zhang, *Phys. Rev. Lett.* **91**, 186402 (2003); A.V. Gorshkov et al, *Nat. Phys.* **2**, 289 (2010); S. Taie et al, *Nat. Phys.* **18**, 1356 (2022); G. Pasqualetti, et al, *Phys. Rev. Lett.* **132**, 083401 (2024).
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15:30 Coffee Break

16:00 Lucile Mangin-Thro and Andrew Wildes [1,*]: *The new D007 permanently-polarized neutron diffuse scattering instrument at the ILL*

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The D7 neutron diffuse scattering instrument at the Institut Laue-Langevin [1] has been an important experimental tool in the study of disordered materials, making use of neutron polarization analysis to provide a clean and unambiguous separation of the magnetic, incoherent, and structural contributions to the scattering. D7 has been disassembled, and the new D007 [2] started its commissioning in 2024. The upgrade promises an increase in flux by an order of magnitude with a comparable resolution. Both diffraction and spectroscopic modes will be still available. In diffraction mode, the same momentum transfer range as D7 will be accessible $(0.2\mathring{A}^1 \leq Q \leq 4.1\mathring{A}^1)$. The instrument may be converted into a polarized direct geometry time-of-flight spectrometer by adding a system of two choppers, and should offer a comparable energy resolution (0.1 meV $\leq \Delta E$ $\leq$ 0.5 meV depending on the incident wavelength [3]). We will start by presenting the polarization analysis capabilities of this type of iinstrument, along with a few scientific examples obtained on the former D7, and finally present the new D007 and its very first performance measurements.

References:
[1] J. R. Stewart, et al. *Journal of Applied Crystallography*, **42**, 69-84 (2009)
[2] G. J. Nilsen, et al. *Nuclear Instruments and Methods in Physics Research A*, 951, 162990 (2020) [3] T. Fennell, et al. *Nuclear Instruments and Methods in Physics Research A*, 857, 24-30 (2017)

16:45 Mladen Horvatić[1,*]: *Critical low-energy spin dynamics in the BEC-type antiferromagnets*

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The NMR nuclear spin-lattice relaxation rate T_1^{-1} data in quantum spin systems provide privileged access to low-energy spin fluctuations and are directly comparable to theoretical predictions for the corresponding spin-spin correlation functions. In particular, gapless quasi-1D systems are addressed by the Tomonaga-Luttinger Liquid (TLL) theory, a purely 1D, effective, low-energy description, providing a 1D-critical, power-law prediction for the temperature (T) dependence of T_1^{-1}. We showed that in real compounds an RPA-based correction factor has to be applied to this power-law, in order to account for the enhancement of the T_1^{-1} rate induced by the 3D-critical fluctuations related to the low-T BEC ordering. Using this TLL+RPA description, we can successfully characterize all the quasi-1D spin systems from their $T_1^{-1}(T)$ data and, in particular, directly determine the TLL parameter K that describes the strength of the boson interaction and whether it is attractive or repulsive [1]. For quasi-2D systems, the theoretical description of $T_1^{-1}(T)$ data is more challenging as quantum Monte Carlo (QMC) numerical simulations are needed to establish a reference for theoretic predictions. In a modified Han purple compound, $Ba_2CuSi_2O_6Cl_2$, we have determined by NMR the complete BEC phase boundary, whose close correspondence to the QMC prediction precisely established relevant parameters, namely the effective 3D exchange coupling and the corresponding Berezinski-Kosterlitz-Thouless temperature T_{BKT}. For the $T_1^{-1}(T)$ data we thus confirm their 2D-critical behavior, however, the observed critical exponents are found to be different from the ones predicted by QMC, leaving the subject open to further investigation [3]. Finally, from the T_1^{-1} data recorded in the $SrZnVO(PO_4)_2$ compound precisely at the saturation field, we learn that the theoretically predicted quantum critical $T^{3/4}$ dependence cannot be experimentally accessed in any compound, because the convergence into this low-T limit is too slow and the theoretical prediction is no longer valid when the BEC transition is too close. Nevertheless, the complete description provides correct semi-quantitative account of the data [4].

References:

[1] M. Dupont et al., *Phys. Rev. B* **98**, 094403 (2018)

[2] M. Horvatić et al., *Phys. Rev. B* **101**, 220406(R) (2020)

[3] K. M. Ranjith et al., *unpublished*

[4] K. M. Ranjith et al., *Phys. Rev. B* **105**, 134429 (2022)

17:30 Dicussions

19:30 Dinner (U Mulinu, 28 Bd de l'Hôpital, 75005 Paris, Tel 01 43 37 78 76)

Session IV, Chair Sylvain Petit

9:00 Laura Chaix [1,*]: *Complex multi-q magnetic order and multiferroicity in spinel $GeFe_2O_4$*

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As they often stabilize with complex non-collinear magnetic structures, frustrated magnets are potential candidates for type-II multiferroism, where both magnetic and electric orders appear at the same temperature and are strongly coupled [1]. In these materials, the proper understanding of the coupling between spin and charge degrees of freedom is a key to identify the microscopic mechanism at the origin of the multiferroic properties [2 ,3]. Here we focus on the normal cubic spinel GeFe2O4, crystallizing in the Fd-3m space group. In this compound, the Fe magnetic ions form a pyrochlore sublattice, consisting of a network of corner-sharing tetrahedra prone to magnetic frustration [4]. In this talk I will present our recent study combining experiments (single-crystal neutron diffraction and inelastic neutron scattering) with meticulous modeling of the experimental data. I will show how this complementary approach has been successful to evidence, in this system, a non-coplanar spin structure described by a combination of 6 symmetry-equivalent propagation vectors [5]. We will also see how this complex multi-q magnetic order plays a crucial role in the emergence of ferroelectric properties recently observed at the magnetic transition temperature [6].

References:

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[6] E. Chan et al., in preparation.

9:45 Paul McClarty [1,*]: *Frustrated non-magnetism: quadrupoles on the pyrochlore lattice*

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Everyone at this meeting, even people relatively new to the field, will be familiar with the considerable theoretical and experimental richness of the pyrochlore magnets. The most explored family of pyrochlore materials are rare earths like $R_2M_2O_7$ with magnetic rare earth R. These are large moment systems and most likely they have significant bare ion multipolar couplings. With the crystal field splitting one may often find an effective spin one-half picture for the magnetism. But in non-Kramers ions the low energy doublet is of mixed dipolar-quadrupolar character. Also in $Tb_2Ti_2O_7$, one of these non-Kramers magnets, there are low-lying crystal field levels that call a straightforward projection onto the ground state doublet into question such that irreducibly higher rank couplings may be central to the physics. In this talk, I shall focus on localized quadrupolar moments on the pyrochlore lattice. I'll explain how they couple and aspects of the physics that can arise from these degrees of freedom alone and in combination with the dipole moments.

10:30 Coffee Break

11:00 Claudia Decorse [1,*]: *Role of synthesis in the study of frustrated magnetism: the rare-earth pyrochlores case*

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Rare earth pyrochlores are materials that can accommodate exotic magnetic behaviors resulting from the phenomenon of geometrically-driven magnetic frustration. The study of frustrated magnetism in these compounds requires not only high-level skills in condensed matter physics, magnetism, neutron techniques and complex analyzing tools, models development and simulation, but also extensive knowledge in synthesis and materials design. The most obvious contribution of synthesis to the study of frustrated magnetism lies in the availability of a wide variety of samples, in different forms, and especially centimeter-sized single-crystal samples of high crystalline quality. This implies a strong investment in the development of selected compounds, in polycrystalline as well as monocrystalline form, with the implementation of very rigorous protocols to ensure the control of structure and stoichiometry. Beyond this nourishing role, synthesis can also provide new tools to probe the exotic magnetic behavior of these systems, such as chemical pressure or disorder. Modulating the magnetic properties using chemical pressure through judiciously chosen substitutions or using disorder through formulations based on the new approach of high-entropy oxides deliver new elements of response to decrypt the link between chemical composition, structure and magnetic behavior of these materials.

11:45 Andreas Honecker[1,*], Katarina Karl'ová[1], Jozef Strečka[2], Taras Verkholyak[3], Stefan Wessel[4], Nils Çaçi[5]: *Diamond-decorated quantum antiferromagnets in two dimensions*

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The spin $1/2$ Heisenberg antiferromagnet on the diamond-decorated square and honeycomb lattices is a highly frustrated quantum spin system that exhibits rich physical phenomena. In the presence of a magnetic field, it displays various quantum phases including the Lieb-Mattis ferrimagnetic, dimer-tetramer, monomer-dimer, and spin-canted phases, in addition to the trivial fully saturated state, see [1] for the square lattice (work on the honeycomb lattice in progress). We investigate the thermodynamic properties of this model using several complementary analytical and numerical methods such as exact diagonalization up to systems of 40 spins, an effective monomer-dimer description, sign-problem-free quantum Monte Carlo simulations, and a decoupling approximation. In this contribution, we focus on the parameter region favoring the dimer-tetramer phase on the square [2] and the honeycomb lattice. The ground-state problem can be represented by a classical hard-dimer model and retains a macroscopic degeneracy even under a magnetic field. However, the description of the low-temperature thermodynamics close to the boundary between the macroscopically degenerate dimer-tetramer and the non-degenerate monomer-dimer phases on the square lattice requires an extended classical monomer-dimer lattice-gas model. In the vicinity of the dimer-tetramer phase, we detect an enhanced magnetocaloric effect on the square lattice, promoting an efficient cooling to absolute zero temperature under adiabatic demagnetization. The ground-state degeneracy in the zero-field dimer-tetramer phase can be lifted partially or completely by a small distortion. In a particular case of spatially anisotropic coupling constants on the honeycomb lattice, the degeneracy is lifted completely, giving rise to a Kastelyn-type phase transition in the effective hard-dimer model.

References:

[1] N. Çaçi, K. Karl'ová, T. Verkholyak, J. Strečka, S. Wessel, A. Honecker, Phases of the Spin-$1/2$ Heisenberg Antiferromagnet on the Diamond-Decorated Square Lattice in a Magnetic Field, *Phys. Rev. B* **107**, 115143 (2023)

[2] K. Karl'ová, A. Honecker, N. Çaçi, S. Wessel, J. Strečka, T. Verkholyak, Thermodynamic Properties of the Macroscopically Degenerate Tetramer-Dimer Phase of the Spin-$1/2$ Heisenberg Model on the Diamond-Decorated Square Lattice, *Phys. Rev. B* **110**, 214429 (2024).

FMW-2025 Program

Time	MONDAY 30/06	TUESDAY 01/07	WEDNESDAY 02/07
9:00		*Session II - Chair Elsa Lhotel* On the classification of classical spin liquids in 2 and 3 dimensions **Pierre Pujol**	*Session IV - chair Sylvain Petit* Complex multi-q magnetic order and multiferroicity in spinel $GeFe_2O_4$ **Laura Chaix**
9:45		A review about higher-rank spin liquids **Ludovic Jaubert**	Frustrated non-magnetism: quadrupoles on the pyrochlore lattice **Paul McClarty**
10:30		*Coffee Break*	*Coffee Break*
11:00		Chemical Prospection for frustrated compounds: Some exotic layered - compounds, using various polyanions as 2D-spacers **Olivier Mentré**	Role of synthesis in the study of frustrated magnetism: the rare-earth pyrochlores case **Claudia Decorse**
11:45		Investigating Kitaev interactions in Co honeycomb antiferromagnets **Manila Songvilay**	Diamond-decorated quantum antiferromagnets in two dimensions **Andreas Honecker**
12:30		*Lunch break*	
13:30	*On site registration*		
14:00	**Introduction**	*Session III - Chair Nicolas Laflorencie* Tensor network approach to SU(N)-symmetric antiferromagnets **Mathieu Mambrini**	
14:30	*Session I - chair Laura Messio*		
14:45	Enhanced frustration in the anisotropic kagome compound Y-Kapellasite by external pressure **Fabrice Bert**	Phase Transitions in SU(N) Fermi-Hubbard models **Pierre Nataf**	
15:15	Some possible contributions of theoretical chemistry to strongly correlated materials: the example of Herbertsmithite **Natalie Guihéry**		
15:30		*Coffee Break*	
16:00	*Coffee break*	The new D007 permanently-polarized neutron diffuse scattering instrument at the ILL **Lucile Mangin Thro**	
16:30	Fractional vortices in the Heisenberg kagome-lattice antiferromagnet **Mike Zhitomirsky**		
16:45		Critical low-energy spin dynamics in the BEC-type antiferromagnets **Mladen Horvatic**	
17:15	Artificial frustrated 2D magnets **Nicolas Rougemaille**		
17:30		**Discussions**	
18:00			
18:30			
19:30		**Dinner**	