

## CURRICULUM VITAE

**Dr. Tatiana Guidi**

### **Personal Details:**

Name: Tatiana  
Surname: Guidi  
Citizenship: Italian  
Address (work): ISIS Neutron and Muon Source facility, Building R3  
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### **Present position:**

Permanent Senior Research Scientist at the ISIS Neutron Spallation Source - Excitation group (2008 – to date). I am the first responsible of the MARI inelastic neutron spectrometer at ISIS. I manage the scientific program and the instrument upgrades. I have been the scientific lead of a major upgrade project for MARI successfully completed in February 2019. I have been previously co-responsible of two different spectrometers at ISIS, MERLIN and LET.

I run my own research activity that is focused on molecular magnetism and low dimensional magnetism. I have a wide and long standing experience in neutron techniques applied to the study of magnetic properties of molecular magnets, low dimensional magnets, superconductors, quantum magnets. I specialize in the use of Large Scale Facilities instrumentations to investigate the magnetic structure and spin dynamics in molecular magnets. I use a variety of different techniques (inelastic neutron scattering, diffraction, polarized neutron diffraction) to investigate the microscopic magnetic properties of molecular nanomagnets and I am the neutron scientist expert in a network of many collaborators.

**I currently hold a Hirsch index factor of 30 (according to the ISI Web of Science) and my papers have been cited more than 3100 times (3000 without self citations).**

### **Education and titles:**

- From November 2017 - Visiting Senior Lecturer at the School of Chemistry, Manchester University
- 11/12/2013 – reconfirmed on the 15/01/2020: “**Abilitazione Scientifica Nazionale**” da **Professore II Fascia**, settore scientifico disciplinare 02/B1 (Fisica Sperimentale della Materia)- Italian Associate Professorship Habilitation – valid until 15/01/2029.
- 14/01/2005: **PhD in Material Science**, in the Department of Ingegneria dei Materiali, delle Acque e dei Terreni Università Politecnica delle Marche. Title of the thesis: “*Spin excitations and magnetic properties of Molecular Nanomagnets*” (English). Advisor: Prof. Roberto Caciuffo.
- 21/02/2001: **Laurea in Fisica (MS)**, specialization in Condensed Matter Physics, Università degli Studi di Camerino, mark **110/110 cum laude**, title of the thesis: “*Dinamica solitonica in catene unidimensionali*” (Italian). Advisor: Prof. Fabio Marchesoni.

## Past work experience:

- Aug.2006-  
Jan. 2008      **Post Doc** at Hahn-Meitner-Institut, Berlin, Germany – Prof. Bella Lake research group - Department of magnetism and Superconductivity of quantum systems, 3 year contract with the subject “Neutron Scattering Studies of Molecular Magnets”
- Sept.2005-  
July 2006      **Guest Researcher** at “Center for Neutron Research - National Institute of Standard and Technology”, Gaithersburg, Maryland (USA) 11 month contract for scientific collaboration.
- 2004-2006      **PostDoc** (“22 months Assegno di ricerca”) at the Dipartimento di Fisica ed Ingegneria dei Materiali e del Territorio, Facolta’ di Ingegneria Università Politecnica delle Marche (Ancona) “*Effetti quantistici in nanomagnetici molecolari: nuove proprietà fisiche e applicazioni. Dinamica e struttura di Nanomagnetici Molecolari. Studi sperimentali mediante scattering anelastico di neutroni, diffrazione neutronica e diffrazione di radiazione di sincrotrone*”
- 14/01/2005      **PhD in Material Science Engineering**, Università Politecnica delle Marche (Italy)  
*Spin excitations and magnetic properties of Molecular Nanomagnets* (English)  
Supervisor: Prof. Roberto Caciuffo
- July-October  
2001      **Fellowship** from Department of Physics of DIBIAGA, Università Politecnica delle Marche (Italy) “*Calcolo dello scattering multiplo di neutroni in campioni di acqua leggera a temperatura ambiente in funzione della geometria del campione.*”
- 21-02-2001      **Degree of Physics** with full-honours mark, Università degli Studi di Camerino thesis dissertation:  
*Title: Soliton dynamics in one-dimensional discrete chains* (Italian)  
Supervisor: Prof. Fabio Marchesoni.

## Awards:

- Award for the best PhD thesis in Neutron Spectroscopy (2008) SISN (Società Italiana di Spettroscopia Neutronica)
- ISIS Team award for the successful commissioning of MERLIN spectrometer (2009) and MARI (2019)
- Award for best poster for young researchers, ICMM2014 St. Petersburg, Russia (2014).
- Best poster award at the conference “ECMM 2006”
- Runner up poster award “NSSA Prize for Outstanding Student Research”, American Conference on Neutron Scattering (2006).
- Best poster award for young scientists, INFMeeting 2002.

## Foreign Languages:

English, fluent written and spoken.  
Italian, mother-tongue.

## Computer knowledge:

OS: Windows, Unix, Linux, MacOs and related software  
Languages and programs: Python, Fortran77, Mathematica, Matlab

### **Affiliations and other activities:**

Member of SISN (Società Italiana di Spettroscopia Neutronica)  
Member of IOP Neutron Scattering Group (years 2012-2015)  
Secretary and Treasurer for the IOP Neutron Scattering Group (years 2012-2015)  
Reviewer for proposals of NIST and ORNL (USA)  
Member of the proposal selection panel of college 4 - ILL (Grenoble, France) (2013-2016)  
Reviewer for Physical Review B, Physical Review Letter, Chemical Physics, Review of Modern Physics, Europhysics Letter, Nature Communications.

### **Editorial experience:**

Member of the editorial team of [Notiziario Neutroni e Luce di Sincrotrone](#) (CNR) as ISIS correspondent (years 2008 - 2013)  
Member of the ISIS production team for the [ISIS Annual Review](#) (years 2010-2012)  
Member of [Editorial Board of Magnetochemistry](#) (2020-to date)

### **Teaching experiences:**

2002-2005: Exercises Instructor of General Physics and Electromagnetism for Mechanical and Electronic Engineering courses at University Politecnica delle Marche (*Fisica Generale II* (Corso di Ingegneria Elettronica V. O.), *Fisica Sperimentale II* (Ingegneria Meccanica), *Fisica Generale I* (Ingegneria Logistica e della Produzione, Informatica e Telecomunicazioni), *Fisica* (Corso di Costruzioni Edili e Recupero).

27-29 June 2005: Tutorial on “Spin Excitations in Molecular Nanomagnets” at the school: “Neutroni e magnetismo: dalle interazioni fondamentali alle applicazioni innovative” (SISN congress).

2012-to date: Tutor at the ISIS Neutron School – “Inelastic neutron scattering and Magnetism”, “Neutron Interactions”, “Inelastic Scattering from Single Crystals”, “Inelastic scattering from polycrystals”, “Single crystal alignment”.

2013: Tutor at the SISN Summer School 22-27 September 2013, S. Giovanni, Valle Aurina: “Scattering anelastico e magnetismo”

2017: Tutor at the Giornate Didattiche SISN 2017 Introduzione alle tecniche neutroniche per lo studio microscopico della materia, con applicazioni alla Fisica, Chimica, Biologia, Geologia e Beni Culturali 16-25 Settembre 2017 “Scattering anelastico e magnetismo”.

2018: Tutor at the Giornate Didattiche SISN 2018 Introduzione alle tecniche neutroniche per lo studio microscopico della materia, con applicazioni alla Fisica, Chimica, Biologia, Geologia e Beni Culturali 14-24 Settembre 2018, Torino – Pracatinat, Torino “Introduzione allo scattering magnetico”

2019: Tutor at the Giornate Didattiche SISN 2019 Introduzione alle tecniche neutroniche per lo studio microscopico della materia, con applicazioni alla Fisica, Chimica, Biologia, Geologia e Beni Culturali 13-24 Settembre 2019, Grenoble, France “Introduzione allo scattering magnetico”

From 2017- to date:  
Senior Lecturer at the University of Manchester, Course of “Neutron Scattering” - School of Chemistry, University of Manchester.

### **Organizations of conferences/schools:**

- *PNSXM (Polarised Neutrons and Synchrotron X-rays for Magnetism) congress*, Venezia, 4-7 August 2003. Member of Local Organizing Committee.

- Organizer of the Neutron Spectroscopy session at Condensed Matter and Material Physics conference CMMP11 (Manchester, 13th December 2011)
- Serve on the Program Committee for the 2018 International Conference on Magnetism, **ICM2018** (<http://icm2018sf.org>) for the subtopic 2.02 Molecular magnetism.
- Organizing committee of the TEMM Theoretical and Experimental Magnetism Meeting (2013, 2014, 2017)
- Director of the advanced school: “Neutrons and Muons for Magnetism” The 2019 edition of the SISN Advanced School 2-6 September 2019, Ispra (Varese) Italy. I have been granted 5K euro funding within the SINE2020 training funding program to support the school organization.
- Organizer of the Satellite meeting “[Facility Science Symposium: Neutrons, X-Rays, EPR and muons for molecular magnetism](#)” of the 17th International Conference on Molecule Based Magnets 13 - 17 June 2021.

### **Students/Post Doc supervision:**

- Supervised a Post Doc, Elena Garlatti, visiting scientist at ISIS for 10 months (January-October 2018) after winning funding from the Della Riccia Foundation. I have supervised her projects on phonon studies on single-ion magnets for data storage and qubit applications and in the context of density functional theory (DFT) calculations.
- Supervised Tatiana Renzi, master thesis (Laurea Specialistica) student from University of Florence (June 2014 – September 2015). Thesis: “Magnetic properties of the  $Mn_3O(Et-sao)_3$  molecular magnet”. (September 2015) Supervisor: Dr. Tatiana Guidi. Co-supervisor: Prof. Alessandro Cuccoli.
- Supervised Davide Albertini, master thesis (Laurea Specialistica) student from University of Parma (placement student from Feb. -March 2017). Supervisor: Prof. Stefano Carretta. Co-supervisor: Dr. Tatiana Guidi.
- Supervised Riaz Hussein, PhD student supervised by Dr. Giuseppe Allodi, for a 3 month visit at ISIS (March-June 2017).
- Appointed as Opponent of the Examining Committee at the public defence of PhD student Ursula Bengård Hansen, at Niels Bohr Institute, University of Copenhagen, Denmark (supervisor Prof. Kim Lefmann) - August 2017.
- Supervisor of 1 Placement student Arianna Rocchetti (3 months) Università di Trento, Italy for “Laurea Magistrale”. Thesis: “Low Energy Transfer: Flux and Resolution” An implementation for the MantidProject software for the neutron spectrometer LET. (December 2013). Thesis advisor Prof. Aldo Fontana.
- Supervised visiting students from collaborators at University of Manchester, ILL and University of Parma (Mike Baker, Simon Ansbro).

### **External positions:**

Visiting scientist at the Department of Physics, Parma University, invited by Prof. Giuseppe Amoretti and Prof. Stefano Carretta – October-December 2014, June-July 2016.

### **International collaborations:**

- Prof. R. Winpenny group, Department of Chemistry, University of Manchester, Manchester, United Kingdom
- Prof. Stefano Carretta, Prof. Paolo Santini, Prof. Giuseppe Amoretti, Dipartimento di Fisica, Università di Parma
- Dr. Nick Chilton, Department of Chemistry, University of Manchester, Manchester, United Kingdom
- Prof. Roberta Sessoli, Dipartimento di Chimica, Università di Firenze
- Prof. R. Caciuffo, ITU Karlsruhe, Germany
- Dr H. Mutka, Dr S. Mason, Dr A. Stuneaut, Institute Laue-Langevin, Grenoble, France
- Dr B. Gillon, Laboratoire Leon Brillouin, Saclay, France
- Prof. B. Lake, Helmholtz-Zentrum Berlin, Berlin, Germany
- Prof. E. Brechin, University of Edinburgh, United Kingdom
- Prof. M. Murrie, University of Glasgow, United Kingdom
- Dr F. Pratt, Dr P. Manuel, ISIS, Rutherford Appleton Laboratory
- Prof. Hogi Weihe, Dr Stergios Piligkos – University of Copenhagen, Denmark
- Prof. Joris van Slageren – University of Stuttgart, Germany
- Dr Marco Evangelisti – Zaragoza University, Spain

### **Projects involvement and co-ordination of scientific projects:**

I have contributed to the following projects:

- Progetto PAIS “Magnetic correlations in low dimensional systems” (INFM).
- Progetto PRA “Mesoscopic Scale Magnetism in Molecular Clusters” (INFM)
- Progetto FIRB “Nanoorganizzazione di molecole ibride con proprietà a magnetiche e ottiche” (MIUR).
- Research Training Network *Quantum Effects in Molecular Nanomagnets Materials (VI programma quadro UE)*.
- Network of Excellence *Molecular Approach to Nanomagnets and Multifunctional Materials (VI programma quadro UE)*.
- Progetto FIRB 2012 “*New challenges in molecular nanomagnetism: from spin dynamics to quantum-information processing*”

I have been Proposer and Principal Investigator for 11 Scientific Proposals (60 days of total beam time) assigned after a peer-review process at ILL - total estimated cost **1 M euro**, and co-investigator of 23 Scientific Proposals at ILL (116 days of total beam time) - total estimated cost **1.9 M euro**.

I have been Proposer and Principal Investigator for 5 Scientific Proposals (15 days of total beam time) assigned after a peer-review process at ISIS - total estimated cost £ **220 K**, and co-investigator of 20 Scientific Proposals at ISIS (106 days of total beam time) - total estimated cost £ **1.5 M**.

I have been Proposer and Principal Investigator for 13 successful Scientific Proposals at NCNR NIST (USA) - total estimated cost more than **100 K dollars**.

I have been Proposer and Principal Investigator for many other (more than 10) successful Scientific Proposals at LLB (France) , HMI (Germany), FRMII (Germany).

### **Seminars and invited talks:**

- SISN (Società Italiana Spettroscopia Neutronica, Genova (Italy), 26-27 June 2003) conference:  
Title: Spin Excitations in Molecular Nanomagnets.
- Incontro Nazionale sulla Fisica dei Magnetici Molecolari, Modena (Italy), 21 December 2004 Centro Nazionale di Ricerca S 3 – INFM  
Title: Spin excitations in magnetic molecular clusters probed by Inelastic Neutron Scattering
- SISN (Società Italiana Spettroscopia Neutronica, Ancona (Italy) 30 June –1 July 2005) conference:  
Title: Dynamics of heterometallic Cr<sub>7</sub>M (M= Zn, Mn, Ni) rings probed by inelastic neutron scattering
- NCNR seminar, NIST, Gaithersburg (Maryland, USA), 20 October 2005  
Title: Spin dynamics of antiferromagnetic molecular rings probed by inelastic neutron scattering
- QUEMOLNA meeting 23–24 April 2006, Colegio Mayor Rector Peset - Valencia – Spain  
Title: Inelastic neutron scattering study of the spin dynamics and quantum fluctuations in antiferromagnetic molecular rings
- **Invited talk:** Argonne National Laboratory, IL (USA), 23 June 2006 (invited)  
Title: Spin dynamics of antiferromagnetic molecular rings probed by Inelastic Neutron Scattering
- Meeting of the Priority Programme “Molecular Magnetism” in Bad Dürkheim, Germany, May 6th – 9th, 2007  
Title: Inelastic neutron scattering study of hexanuclear Mn(III)-based clusters with high anisotropy barrier
- BENSC users’ meeting, 23-24 May 2007, HMI Berlin, Germany  
Title: Inelastic Neutron Scattering study of hexanuclear Mn(III)-based single molecule magnets.
- 4th European Conference on Neutron Scattering, 25-29 June 2007 Lund, Sweden  
Title: Quantum oscillations of the total spin in a heterometallic antiferromagnetic ring: Evidence from neutron spectroscopy
- Seminar at BESSY, 27 August 2007, Berlin, Germany  
Title: Inelastic Neutron Scattering study of spin dynamics in Molecular Nanomagnets
- **Invited talk at ORNL Users Week, October 8-11, 2007, Oak Ridge, TN (USA)**  
Title: Inelastic Neutron Scattering study of spin excitations in molecular nanomagnets.
- ISIS seminar, June 24, 2008, Rutherford Appleton Laboratory, Didcot (UK)  
Title: Quantum effects in the spin dynamics of molecular nanomagnets probed by inelastic neutron scattering
- SISN (Società Italiana Spettroscopia Neutronica) conference, Ancona (Italy) 30 June –1 July 2008  
**Invited talk:** SISN prize for the best PhD thesis on neutron scattering  
Title: Spin excitations and magnetic properties of molecular nanomagnets
- **Invited Seminar at Department of Physics, University of Oxford, Clarendon Laboratory, Oxford (UK), November 6, 2008**  
Spin excitations and quantum effects in Molecular nanomagnets probed by neutron scattering
- Contemporary Science talk to the “Living in a Materials World teacher development weekend”, ISIS, June 26th, 2009  
Molecular Nanomagnets
- Oral presentation in the Oliver Kahn Session – European Conference of Molecular Magnets, Wroclaw (Poland) 4-7 October 2009  
Title: Spin Dynamics and spin density distribution in antiferromagnetic molecular rings
- Magnet '09, I convegno nazionale di magnetismo, Rome, 27-29 October 2009.  
Title: Spin Dynamics and Spin Density Distribution in Antiferromagnetic Molecular Rings
- **Invited Seminar at Department of Physics, University of Birmingham, Condensed Matter Group, Birmingham (UK), March 27, 2009** Spin excitations and quantum effects in molecular nanomagnets

- Oral presentation in the Oliver Kahn Session – *European Conference of Molecular Magnets, Wroclaw (Poland) 4-7 October 2009* Title: Spin Dynamics and spin density distribution in antiferromagnetic molecular rings
- *Magnet '09, I convegno nazionale di magnetismo, Rome, 27-29 October 2009.* Title: Spin Dynamics and Spin Density Distribution in Antiferromagnetic Molecular Rings
- *Contemporary Science talk at "Living in a Materials World teacher development weekend", ISIS, 17th July 2010* Title: "Molecular Nanomagnets"
- **Invited talk at TEM meeting, RAL (UK) 16-17 June 2011** Title: Direct Access to the Spin Correlations within Zero Dimensional Spin systems
- *Talk at the 12th International Conference on Molecule-Based Magnets, Beijing, China, October 8-12, 2010* Title: "A Spectroscopic Study of Mn<sub>6</sub> Clusters"
- *Seminar at the Laboratoire Léon Brillouin, 11th January 2011:* Title: "Direct Access to the Spin Correlations within Zero Dimensional Spin Systems"
- *Talk and poster at JEMS 2012 (Parma, 13 September 2012)*
- **Invited talk at FLIPPER 2013 (Grenoble, 23 to 25 January 2013)**
- **Invited talk** at the Workshop: Development of Functionalized Molecule-based Magnetic Materials (*Tohoku University – Japan, 19- 21 February, 2013*)
- **Invited talk** at the workshop: Functionalized molecule-based magnetic materials. Title: Mapping of spin correlations with neutron scattering (*ZiF- Bielefeld, Germany, 24 – 27 November 2014*) Title: "Mapping of spin correlations with neutron scattering"
- **Invited seminar** at Department of Physics, *Universtiy of Tor Vergata (Rome)*, Title: "Correlazioni dinamiche nei magneti molecolari" 25 February 2015.
- General talk on neutron scattering at the UCL students visiting ISIS (20th January 2015)
- **Invited talk** at the Theoretical and Experimental Magnetism Meeting 2015: *'Finite size effects in a chain of antiferromagnetically coupled spins 3/2'*
- ISIS Away day - *'MARI upgrade'* (2016)
- Excitation group away day talk: *'INS study of single and entangled rings'*, the Elephant Hotel, Pangbourne, 21-22 January 2016.
- SINS 2016 – Ancona, Italy; **invited talk:** *Direct observation of finite size effects in chains of antiferromagnetically coupled spins*
- NMUM 2016 – Warwick University. **Invited talk:** *Direct observation of finite size effects in chains of antiferromagnetically coupled spins*
- JCNS and FLIPPER 2016 – Tutzing, Germany; **Invited talk:** *Antiferromagnetic molecular rings: spin density and dynamics*
- Sixth Annual Niels Bohr International Academy Workshop on ESS Science 7-8 November 2016, ESS Lund, **Invited talk:** *INS study of single and entangled rings*
- Excitation group away day talk: *'Mn<sub>12</sub> single molecule magnet: 20 years after'*, Eynsham Hall, 26-27 January 2017
- Superstipes, Ischia 4-10 June 2017, **invited talk:** *INS study of single and entangles rings.*
- **Invited talk** at the Bielefeld MolMag workshop November 6-8, 2017, Bielefeld, Germany (*ZiF- Bielefeld, Germany, November 6-8, 2017*)
- **Invited talk at the 43rd International Conference on Coordination Chemistry, Sendai, Japan (30th July – 4th of August 2018)**
- **Invited talk, Keynote Lecture** at the International Conference on Molecule-based Magnets – ICMM2018, Rio de Janeiro, Brazil, 1-5 September 2018
- **Invited talk** at Nordita, Sweden, 20 November 2018.
- **Plenary talk at the European Conference on Neutron Scattering:** <http://ecns2019.com/key-speakers/plenary-lectures>, "Neutron scattering techniques for molecular magnetism", VII European Conference on Neutron Scattering 2019 Saint-Petersburg, Russia, 30 June-5<sup>th</sup> July 2019.
- **Invited talk** at the APS March meeting, Boston (MA, USA), March 4-8, 2019.
- **Invited talk** at the Multiscale phenomena in molecular matter, Kraków (Poland) 1-4 July 2019.
- **Invited talk** at Superstipes, Ischia (Italy) 23-29 June 2019.
- **Invited Seminar** at UCL, London, Department of Physics, 8 May 2019.
- **Invited Seminar** at Universidad de Zaragoza, Department of Physics, 8 November 2019.
- **Invited Seminar** at Università degli Studi di Camerino, Department of Physics, 21 February 2020.
- **Invited talk** at the MRS Fall Meeting, Boston, 1-6 December 2019
- **Invited talk** international MMM Magnetism and Magnetic Materials Conference, virtual (USA) 4-11 November 2020.

## **Publications:**

### **Books:**

Book chapters:

T. Guidi: *Neutron Spectroscopy of Molecular Nanomagnets* in the book: “Molecular Cluster Magnets” – *World Scientific Series in Nanoscience and Nanotechnology*, vol. 3 - Editor: R.E.P. Winpenny -ISBN: 978-981-4322-94-2

Krunoslav Prša, Joscha Nehrkorn, Jordan F. Corbey, William J. Evans, Selvan Demir, Jeffrey R. Long, Tatiana Guidi and Oliver Waldmann

*Perspectives on Neutron Scattering in Lanthanide- Based Single-Molecule Magnets and a*

*Case Study of the Tb<sub>2</sub>(μ-N<sub>2</sub>) System*, in “Molecular Magnetism of Lanthanides Complexes and Networks” Editor: Kevin Bernot June 2018 ISBN 978-3-03842-987-6

### **Scientific papers:**

1) C.Cattuto, G.Costantini, T.Guidi, and F.Marchesoni,  
*Elastic strings in solids: Discrete kink diffusion*,  
**Phys. Rev. B** **63**, 094308 (2001).

2) C.Cattuto, G.Costantini, T. Guidi, and F.Marchesoni,  
*Driven kinks in discrete chains: Phonon damping*,  
**Phys. Rev. E** **63**, 046611 (2001).

3) S. Carretta, J. Van Slageren, T. Guidi, E. Livioti, C. Mondelli, D. Rovai, A. Cornia, A. L. Dearden, F. Carsughi, M. Affronte, C. D. Frost, R. E. P. Winpenny, D. Gatteschi, G. Amoretti, R. Caciuffo,  
*Microscopic spin Hamiltonian of a Cr<sub>8</sub> antiferromagnetic ring from inelastic neutron scattering*,  
**Phys. Rev. B** **67**, 094405 (2003).

4) J. Mira, F. Rivadulla, J. Rivas, A. Fondando, T.Guidi, R.Caciuffo, F.Carsughi, P. G. Radaelli, and J. B. Goodenough, *Structural transformation induced by magnetic field and colossal magnetoresistance response above 313 K in MnAs*,  
**Phys. Rev. Lett.** **90**, 972031 (2003).

5) J. Mira, F. Rivadulla, J. Rivas, A Fondando, R. Caciuffo, F. Carsughi, T. Guidi, J.B. Goodenough,  
*MnAs: magnetic-field induced structural transformation and associated magnetoresistance*,  
**Bulletin of the American Physical Society**, Vol. **48**, No. 1, p. 283 (2003).

6) M. Affronte, T. Guidi, R. Caciuffo, S. Carretta, G. Amoretti, J. Hinderer, I. Sheikin, A. G. M. Jansen, A. A. Smith, R. E. P. Winpenny, J. van Slageren, D. Gatteschi,  
*Mixing of magnetic states in a Cr<sub>8</sub> molecular ring*,  
**Phys. Rev. B** **68**, 104403 (2003).

7) O. Waldmann, T. Guidi, S. Carretta, C. Mondelli, and A. L. Dearden,  
*Elementary excitations in the cyclic molecular nanomagnet Cr<sub>8</sub>*,  
**Phys. Rev. Lett.** **91**, 237202 (2003).

8) S. Carretta, P. Santini, E. Livioti, N. Magnani, T. Guidi, R. Caciuffo, and G. Amoretti ,  
*Macroscopic evidence of quantum coherent oscillations of the total spin in Mn-[3x3]*,  
**Eur. Phys. J. B** **36**, 169 (2003).

9) F. Carsughi, G. Baio, D. Rinaldi, T. Guidi, R. Caciuffo, D. Fiorani,  
*Interparticle magnetic correlation in a nanosized maghemite system*,  
**J. Magn. Magn. Mater.** **272–276**, e1173 (2004).

10) M. Affronte, T. Guidi, R. Caciuffo, S. Carretta, G. Amoretti, J. Hinderer, I. Sheikin, R.E.P. Winpenny, J. van Slageren, D. Gatteschi,  
*Heat capacity of Cr<sub>8</sub> molecular ring in magnetic field*,  
**J. Magn. Magn. Mater.** **272–276**, 1050 (2004).



- 11) T. Guidi, G. Amoretti, R. Caciuffo, S. Carretta, A. Cornia, C. D. Frost, E. Livioti, *Inter-multiplet transitions in the Fe<sub>4</sub> magnetic cluster*, **J. Magn. Mater.** **272–276**, e777 (2004).
- 12) T. Guidi, S. Carretta, P. Santini, E. Livioti, N. Magnani, C. Mondelli, O. Waldmann, L. K. Thompson, L. Zhao, C. D. Frost, G. Amoretti, and R. Caciuffo, *Inelastic neutron scattering study of the molecular grid nanomagnet Mn-[3x3]* **Phys. Rev. B** **69**, 104432 (2004).
- 13) S. Carretta, P. Santini, E. Livioti, N. Magnani, T. Guidi, R. Caciuffo, G. Amoretti, *Quantum fluctuations of the total spin in molecular nanomagnets: Evidence from torque and specific heat*, **J. Appl. Phys.** **95**, 7348 (2004).
- 14) S. Carretta, P. Santini, G. Amoretti, T. Guidi, R. Caciuffo, A. Candini, A. Cornia, D. Gatteschi, M. Plazanet, J. A. Stride, *Intra- and inter-multiplet magnetic excitations in a tetrairon(III) molecular cluster*. **Phys. Rev. B** **70**, 214403 (2004).
- 15) R. Caciuffo, T. Guidi, G. Amoretti, S. Carretta, E. Livioti, P. Santini, C. Mondelli, G. Timco, C. A. Muryn, R. E. P. Winpenny *Spin dynamics of heterometallic Cr<sub>7</sub>M wheels (M = Mn, Zn, Ni) probed by inelastic neutron scattering*. **Phys. Rev. B** **71**, 174407 (2005).
- 16) P. Santini, S. Carretta, G. Amoretti, T. Guidi, E. Livioti, R. Caciuffo, A. Caneschi, D. Rovai, Y. Qui, J. R. D. Copley *Spin dynamics and tunneling of the Néel vector in the Fe<sub>10</sub> magnetic wheel*. **Phys. Rev. B** **71**, 184405 (2005).
- 17) J. van Slageren, P. Rosa, A. Caneschi, R. Sessoli, H. Casellas, Y. V. Rakitin, L. Cianchi, F. Del Giallo, G. Spina, A. Bino, A.-L. Barra, T. Guidi, S. Carretta, R. Caciuffo *Static and Dynamic Magnetic Properties of an [Fe<sub>13</sub>]cluster* **Phys. Rev. B** **73**, 014422 (2006).
- 18) R. Caciuffo, T. Guidi, G. Amoretti, S. Carretta, N. Magnani, P. Santini, C. Mondelli. *Spin dynamics of Molecular Nanomagnets* **Physica B** **385**, 301 (2006).
- 19) S. Carretta, P. Santini, G. Amoretti, T. Guidi, J. Dyson, R. Caciuffo, J.A. Stride, A. Caneschi, J.R.D. Copley, *Inelastic-neutron-scattering study of excited spin multiplets and low-energy phonons in the Fe-8 nanomagnet: Implications for relaxation*, **Phys. Rev. B** **73**, 144425 (2006).
- 20) T. Guidi, J. R. D. Copley, Y. Qiu, S. Carretta, P. Santini, G. Amoretti, G. Timco, R. E. P. Winpenny, C. L. Dennis, and R. Caciuffo, *Spin dynamics of Fe<sub>7</sub>M (M=Zn,Mn) heterometallic rings probed by neutron spectroscopy*, **Phys. Rev. B** **75**, 014408 (2007).
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### **Scientific highlights:**

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