

Dr. Eddy Collin

Ing. Physics

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Born the 26/08/1975

French nationality, doubled German

Married, two children

Researcher Institut Néel/MCBT dept. UPR 2940 – CNRS

Experimentalist, Condensed Matter and Low Temperature Physics

CAREER**Oct. 2021-now:** Director of Research CNRS – DR2. *“Condensed Matter at Ultra-Low Temperatures”***July 2014-now:** Appointed **head of ULT group**.**Feb. 2014:** Entitled to head Research, *“Low Temperature Micro and Nano Electro-Mechanics”***Nov. 2009:** Researcher CNRS - CR1. *Opening the microkelvin range to ‘new’ physics**Work on NEMS (Nano-Electro-Mechanical-Systems) at Ultra-low temperatures***Sept. 2007:** European cryogenics school *“Cryocourse 2007”* (Chichilianne, France)**Nov. 2004:** Researcher permanent position CNRS - CR2. **Ultra-Low Temperature** group at the **Institut Néel, CNRS**, (Grenoble, France)*Work on quantum fluids and solids (Helium-3, Helium-4, and confined electrons thereon)***2003-2004:** Post-doc. **Quantronics group** at the **SPEC, CEA** (D. Estève and D. Vion, Saclay, France)*Work on quantum computing and superconducting qu-bits (Josephson junctions’ circuits)***July 2003:** Summer school « entanglement and quantum information processing » (les Houches, France)**2002:** Post-doc. **electrons on Helium** group at the **Royal Holloway College** (M.J. Lea, London, UK)*Work on electrons confined in 2D and quantum computing (electrons on Helium-4)***2001-1999:** PhD thesis in ultra-low temperature physics at the **CRTBT, CNRS** (H. Godfrin and Yu.M. Bunkov, Grenoble, France)*Work on “the effects of disorder on superfluid and 2D ³He at ultra-low temperatures”***1998:** Master « **radiation and matter** » at the **University Joseph Fourier, UJF** (Grenoble, France)**1996-1998:** Engineering student at the **ENSP-G** (Grenoble, France), now **PHELMA***Option “functional materials”: quantum mechanics, semiconductors, solid state matter***June-August 1997:** Engineering training period at the **SIEMENS** high frequency laboratory (Munich, Germany). *Work on a battery-free piezoelectric high-voltage/high-frequency remote control***1994-1995:** Spec. Maths class **P’** at the lycée **Carnot** (Paris, France)**1993:** C Baccalaureate (Science) at the lycée **Honoré de Balzac** (Mitry-Mory 77, France)**DEGREES & PATENTS****Entitled to head research (HdR) degree in physics** (UJF Grenoble), the 21/02/2014*Reviewers: A.D. Armour, D. Estève, J.M. Parpia, and G.R. Pickett***Qualified for the position of reader in physics**, the 30/01/2003**PhD in condensed matter physics** (UJF Grenoble) the 29/01/2002; distinction very good, with congratulations from the jury. *Reviewers: T. Dombre, M. Roger, and E. Varoquaux***Master (DEA) degree, radiation and condensed matter physics** (UJF Grenoble); distinction good, 4th (out of approx. 20 students)**Engineer in physics ENSP-G** (INP-G Grenoble, now **PHELMA**); distinction good**TOEFL** (Test of English passed in 1996 from ENSP-G school); English level: *fluent*.**License degree science and structure of matter** (Jussieu, Paris VI)**Baccalaureate in Science** (Paris); distinction good**2 Patents:** *“Dispositif de réinitialisation de bits quantiques à deux états d’énergie”*, N° 04805408.4-1225-FR2004002864 (CEA 11-2004), and *“Technique de compensation des non-linéarités pour les*

résonateurs micro et nano-mécaniques permettant l'augmentation du régime de dynamique linéaire", extension PCT n° WO 2017114689 A1 (CNRS 05-2015).

FUNDING

2018-now: French representative at EMP (*European Microkelvin Platform, H2020 "Infrastructure"*)
2015-2021: PI of ERC-CoG grant ULT-NEMS n° 647917 "*Ultra-Cold Nanomechanics*"
2015-2017: PI of ANR MajoranaPRO, *following the retirement of previous PI Yu.M. Bunkov*
2010-2014: PI of the French ANR Grant: QNM (Quantum Nano Mechanics)
Grant between Institut Néel CNRS, LOMA CNRS Bordeaux, and Quantronics CEA-Saclay
2009-2013: Member of the European FRP7 Microkelvin collaboration (former EMP)
Collaboration between 12 European partners aiming at opening the microkelvin temperature range to new users. French coordination by H. Godfrin
2005-2008: Member of ANR project ULTIMA, *Ultra Low Temperature Instrument for Measurements in Astrophysics. Lead by the ULT Grenoble team: Yu.M. Bunkov, E. Collin and H. Godfrin*
Pre. 2004: participation as post-doc. To E.U. projects *COSLAB (Cosmology in the Laboratory), Surface e- on mesoscopic structures (low dimensional ideal electronic systems), and Squbit2 (Superconducting quantum bits circuits, second grant)*

GENERAL DUTIES

15/07/2019: Member of scientific board *J. of Low Temperature Physics (JLTP)*; Eds. N. Sullivan, P. Leiderer, J. Pekola.
Co-organization of international schools (*Member of board "Cryocourse", directed by C. Enss*)
Main organizer of Cryocourse 2021, Grenoble Chichilianne, 20-28 September 2021
Co-organization of international workshops (*COSLAB2004 in France*)
Co-organization of international conferences (*QFS2010 in France, ULT2014 in Argentina*)
Web Master of ULT group, <https://neel.cnrs.fr/equipes-poles-et-services/ultra-basses-temperatures-ubt> and related websites
2014-2017: Appointed nanomechanics expert at OMNT (*Observatoire micro&nano technologies*)
Feb. 2009-Jul. 2013: elected member of the laboratory Council (researcher's representative)
Supervision of Master & Dr. students: L. Filleau (2006), Y. Bilbao-Zarraga (2008), J. Kofler (2009), T. Moutonnet (2010), H.A. Ngoma (2017), M. Defoort (2011-2014 PhD), O. Maillet (2014-2018 PhD), D. Cattiaux (2017-now PhD), S. Kumar (2017-now PhD co-dir.), I. Golokolenov (2019-now PhD), B. Alperin (2020-présent PhD co-dir.), and post-docs. K. Lulla (2011-2012), A.I. Maldonado Cid (2016), X. Zhou (2016-2017), R. Gazizulin (2016-2018)
General duties as reviewing articles PhD/HDR, scientific board **O.V. LOUNASMAA prize** (since 2020), consulting board **conference CMD29**, interaction with journalists, admin. tasks, seminars, etc...

TEACHING & OUTREACH

Teaching at international Master level (*summer school Cryocourse 2007 and 2011, Heidelberg winter school 2009 and Heidelberg seminar in 2014, CNRS Institut Néel cryogenics lectures since 2013*): Nuclear Magnetic Resonance (NMR), Micro/nano-mechanics, Superfluid ³He, and ULT cryogenics
Teaching at the *ENSP-G* school (70h/year during 3 years up to 2001): practical trainings. Coaching 2^d year scientific projects since 2015.
Laboratory tours and visits of ULT group for college students, the "*annual open-door days: science en fête*", and the "*French physics Olympics*". Participation to the Master student days

SELECTED PUBLICATIONS

About **80 publications**, in various peer-reviewed international journals and fields, from which:

- "*On-chip thermometry for microwave optomechanics implemented in a nuclear demagnetization cryostat*", X. Zhou, D. Cattiaux, R. R. Gazizulin, A. Luck, O. Maillet, T. Crozes, J-F. Motte, O. Bourgeois, A. Fefferman and E. Collin, Phys. Rev. Applied **12**, 044066 (2019).