

DR. MATTEO D'ASTUTO

Last name	d'Astuto
First name	Matteo
Academic title	Dr.
Date of birth	12.10.1968
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Present position	CNRS researcher

**Academic Education**

- 2010** Habilitation à Diriger des Recherches - Université Pierre et Marie Curie, Paris. "Novel experimental studies of electron-phonon coupling in superconductors using inelastic X-ray scattering".
- 1995-1998** Doctorat (PhD) - Université Paris-Sud, Orsay. "Étude de l'ordre magnétique et de la dynamique de spin du néodyme dans le cuprate supraconducteur de type n: $\text{Nd}_{2-x}\text{Ce}_x\text{CuO}_4$ ". Thesis supervisor: D. Petitgrand - Laboratoire: Léon Brillouin - C.E. Saclay, France.
- 1994-1995** Diplôme d'Études Approfondies (Master 2nd year): Champs, Particules, Matière, Orsay, Paris (Université Paris 7, Denis Diderot).
- 1987-1993** "Laurea" (Master in Physics) - Università di Bologna, Italy. Internship supervisor: Prof. E. Bonetti

Professional career

- Since 2023** "Directeur de Recherche 2ème classe" at the "Institut NEEL" CNRS/UGA UPR2940, Grenoble.
- Since 2022** Head of MagSup team at the "Institut NEEL" CNRS/UGA UPR2940, Grenoble.
- Since 2020** "Chargé de Recherche hors classe" at the "Institut NEEL" CNRS/UGA UPR2940, Grenoble.
- 2019-2022** "Invited professor" at the "Tokyo Institute of Technology", Tokyo, Japan. Intermittent position during the period, contract running until March 31st 2022.
- 2018-2020** "Chargé de Recherche de première classe" at the "Institut NEEL" CNRS/UGA UPR2940, Grenoble.
- 2005-2017** "Chargé de Recherche de première classe" at the UMR7590, "Institut de Minéralogie et Physique des Milieux Condensés (IMPMC)", Université Pierre et Marie Curie, Paris.
- 2003-2005** "Chargé de Recherche de première classe" at C.N.R.S., UMR7602, Physique des Milieux Condensés, Université Pierre et Marie Curie, Paris.
- 2000-2002** Post-doctoral researcher, European Synchrotron Radiation Facility Laboratory (ESRF, Grenoble).
- 1999** Post-doctoral researcher, Laboratoire pour l'Utilisation du Rayonnement Electromagnétique (LURE, Orsay).

Supervision

1 PhD thesis supervision under way, 4 defended PhD thesis supervised, 14 Master 2nd year, 7 Master 1st year and 3 L3 internship supervised.

Publications

Selection of publications in journals or books:

1. B. Bacq-Labreuil, C. Fawaz, Y. Okazaki, Y. Obata, Hervé Cercellier, P. Le Fèvre, F. Bertran, D. Santos-Cottin, H. Yamamoto, I. Yamada, M. Azuma, K. Horiba, H. Kumigashira, **M. d'Astuto**, S. Biermann, B. Lenz: "Universal Waterfall Feature in Cuprate Superconductors: Evidence of a Momentum-Driven Crossover" *Phys. Rev. Lett.* **134** (2025) 016502.
2. X. T. Li, S. J. Tu, L. Chaix, C. Fawaz, **M. d'Astuto**, X. Li, F. Yakhou-Harris, K. Kummer, N. B. Brookes, M. Garcia-Fernandez, Ke-Jin Zhou, Z. F. Lin, J. Yuan, K. Jin, M. P. M. Dean, X. Liu: "Evolution of the Magnetic Excitations in Electron-Doped $\text{La}_{2-x}\text{Ce}_x\text{CuO}_4$ " $\text{Nd}_{1.86}\text{Ce}_{0.14}\text{CuO}_{4+\delta}$ *Phys. Rev. Lett.* **132** (2024) 056002.
3. L. Chaix, B. Lebert, H. Miao, A. Nicolaou, F. Yakhou, H. Cercellier, S. Grenier, N. B. Brookes, A. Sulpice, S. Tsutsui, A. Bosak, L. Paolasini, D. Santos-Cottin, H. Yamamoto, I. Yamada, M. Azuma, T. Nishikubo, T. Yamamoto, M. Katsumata, M. P. M. Dean, **M. d'Astuto** : "Bulk charge density wave and electron-phonon coupling in superconducting copper oxychlorides" *Phys. Rev. Research.* **4** (2024) 033004.
4. B. W. Lebert, T. Gorni, M. Casula, S. Klotz, F. Baudelet, J. M. Ablett, T. C. Hansen, A. Juhin, A. Polian, P. Munsch, G. Le Marchand, Z. Zhang, J.-P. Rueff, **M. d'Astuto**: "Epsilon iron as a spin-smectic state" *Proc. Natl. Acad. Sci. U.S.A.* **116** (2019) 20280.
5. C. Piovera, Z. Zhang, **M. d'Astuto**, A. Taleb-Ibrahimi, E. Papalazarou, M. Marsi, Z. Z. Li, H. Raffy, and L. Perfetti: "Quasiparticle dynamics in high-temperature superconductors far from equilibrium: An indication of pairing amplitude without phase coherence" *Phys. Rev. B* **91** (2015) 224509.
6. A. Monza, A. Meffre, F. Baudelet, J.-P. Rueff, **M. d'Astuto**, P. Munsch, S. Huotari, S. Lachaize, B. Chaudret, A. Shukla: "Iron Under Pressure: "Kohn Tweezers" and Remnant Magnetism", *Phys. Rev. Lett.* **106** (2011) 247201.
7. J. Graf, **M. d'Astuto**, C. Jozwiak, D. R. Garcia, N. L. Saini, M. Krisch, K. Ikeuchi, A. Q. R. Baron, H. Eisaki, A. Lanzara: "Bond Stretching Phonon Softening and Kinks in the Angle-Resolved Photoemission Spectra of Optimally Doped $\text{Bi}_2\text{Sr}_{1.6}\text{La}_{0.4}\text{Cu}_2\text{O}_{6+\delta}$ Superconductors", *Phys. Rev. Lett.* **100** (2008) 227002.
8. R. Verbeni, **M. d'Astuto**, M. Krisch, M. Lorenzen, A. Mermet, G. Monaco, H. Requardt, F. Sette: "Energy calibration of a high-resolution inelastic x-ray scattering spectrometer", *Rev. Sci. Instrum.* **79** (2008) 083902.
9. N. Emery, C. Herold, **M. d'Astuto**, V. Garcia, C. Bellin, J.F. Mareche, P. Lagrange, G. Loupiau: "Superconductivity of bulk CaC_6 ", *Phys. Rev. Lett.* **95** (2005) 087003.
10. O. Mathon, F. Baudelet, J.P. Itié, A. Polian, **M. d'Astuto**, J.C. Chervin, S. Pascarelli: "Dynamics of the magnetic and structural alpha-epsilon phase transition in iron", *Phys. Rev. Lett.* **93** (2004) 255503.
11. A. Shukla, M. Calandra, **M. d'Astuto**, M. Lazzeri, F. Mauri, C. Bellin, M. Krisch, J. Karpinski, S. M. Kazakov, J. Jun, D. Daghero, K. Parlinski: "Phonon Dispersion and Lifetimes in MgB_2 ", *Phys. Rev. Lett.* **90**, (2003) 095506.
12. **M. d'Astuto**, P.K. Mang, P. Giura, A. Shukla, P. Ghigna, A. Mirone, M. Braden, M. Greven, M. Krisch, F. Sette: "Anomalous dispersion of longitudinal optical phonons in $\text{Nd}_{1.86}\text{Ce}_{0.14}\text{CuO}_{4+\delta}$ determined by inelastic X ray scattering", *Phys. Rev. Lett.* **88** (2002) 167002.