

**Emmanuel Fromager**

*Institut de Chimie de Strasbourg, Laboratoire de Chimie Quantique, Université de Strasbourg, Strasbourg, France.*

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**Date of birth:** April, 2nd 1979

**Nationality:** French

**Family:** married, one child

**Current position:** Full Professor (Professeur des Universités), University of Strasbourg

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### Education and employment

**Sept. 2019- ...** Full Professor (Professeur des Universités), Laboratoire de Chimie Quantique, Chemistry Institute (UMR 7177), University of Strasbourg, France.

**Oct. 2013** Habilitation degree (HDR), University of Strasbourg, France.  
Thesis title: *"Methods development in quantum chemistry: multi-determinant density-functional theory for ground and excited states"*.

**2012-2013** One-year sabbatical at the CNRS ("délégation"), Laboratoire de Chimie Quantique, Institut de Chimie, University of Strasbourg, France.

**2008-2019** Maître de Conférences (Associate Professor), Laboratoire de Chimie Quantique, Chemistry Institute, University of Strasbourg, France.

**2007-2008** Post-doc assistant, Prof. K. Ruud, Center for Theoretical and Computational Chemistry, Department of Chemistry, University of Tromsø, Norway.  
Research project: *development of time-dependent multiconfigurational range-separated linear response theory.*

**2005-2007** Post-doc assistant, Prof. H. J. Aa. Jensen, Department of Physics and Chemistry, University of Southern Denmark, Denmark.  
Research project: *development of multiconfigurational range-separated density-functional theory.*

**2002-2005** Co-supervised PhD (“thèse en cotutelle”) in the Laboratory of Quantum Physics, IRSAMC, Paul Sabatier University, Toulouse, France *and* Albanova University Center, Institute of Physics, Stockholm, Sweden.

Supervisors: Prof. Christian Teichteil (Toulouse), Dr. Laurent Maron (Toulouse), and Prof. Ulf Wahlgren (Stockholm).

Thesis title: *“Treatment of spin-orbit interaction in quantum chemistry and application in actinide chemistry”*.

**2002** Master’s degree in Physics of matter, Laboratory of Quantum Physics, IRSAMC, Paul Sabatier University, Toulouse, France.

**2002** Engineering diploma from the “École Nationale Supérieure de l’Aéronautique et de l’Espace” (SUPAERO), Toulouse, France.

## Teaching

I teach theoretical chemistry (192 hours per year) at the University of Strasbourg. I give lectures and/or tutorials on mathematics, quantum mechanics and advanced quantum chemistry (wavefunction and density-functional theories) at both undergraduate and master levels. My lecture notes are available online: <https://lcqs.unistra.fr/teaching/>

## Current research topics

- **Ensemble density functional theory** of electronic excitations
- **Quantum embedding** of strongly correlated electrons
- **Density functional theory** beyond the Born—Oppenheimer approximation

## On-going grants

**2024-2026:** USIAS funding for a two-year post-doc position (108000€), project’s title: “Nuclear quantum dynamics coupled to many-electron density-functional ensembles: exact formulations and practical approximations”.

**2023-2026:** “Interdisciplinary Thematic Institute in Quantum science & nanoMATERials ” (ITI-QMAT) and “QuantEdu-France” grant, Université de Strasbourg (funding for a 3-year PhD position),  
project’s title: *“Quantum implementation of a Functional-Free Density-Functional Theory”*.

## Past grants

**2021-2023:** « Initiative d’Excellence » (**IdEx**) grant, Université de Strasbourg (funding for a 18-month postdoc position),  
project’s title: *“Rewriting density functional theory for ensembles: Towards an in-principle-exact description of density-driven correlations and coupling terms”*.

**2019-2022:** **LabEx** “Chemistry of Complex Systems”, Strasbourg (113000 €),

project's title: *"Towards a systematically improvable density matrix functional embedding theory for strongly correlated electronic systems"*.

**2014-2019:** Young researcher **ANR** grant (JCJC), 127000 €.

**2013-2016 :** **LABEX**, "Chemistry of Complex Systems", Université de Strasbourg, 96000 €.

### Scientific production

**54 publications** in international peer-reviewed rank A journals; **54** oral presentations in international conferences (including **45** invited lectures and **1** plenary lecture); **4** plenary lectures in French national meetings, **52** invited seminars; **1656 citations**; H-index **24** (Google Scholar on 20/05/2024).

A complete list of my publications is available online:

<https://lcqs.unistra.fr/staff-members/emmanuel-fromager/>

### Awards

**2017** Scientific young researcher Prize "Les espoirs de l'Université de Strasbourg" (10000€), University of Strasbourg.

**2024-2026** Fellow of the University of Strasbourg Institute for Advanced Study (USIAS)

### Invited Professor positions

**February 2017** University of Nagoya, Department of Physics, Nagoya, Japan.

**January 2022** Tokyo Metropolitan University, Department of Chemistry, Tokyo, Japan.

### Other activities

- **Appointed member** of the French national scientific research committee (CoNRS), "Chemical Physics" section (the so-called "section 13"), period: 2021-2025.
- **Head** (since February 2022) of the Laboratory of Quantum Chemistry in Strasbourg (LCQS), Institute of Chemistry, University of Strasbourg.
- **Elected member** of the "Modeling and Simulation" board, division of Physical Chemistry, French Chemical Society (SCF), periods: 2018-2021 and 2021-2024.
- **Board member** of the national research group on theoretical spectroscopy (GDR REST).
- **Board member** of the national research group on the many-body problem (GDR NBODY).
- **Founder and organizer** of the ISTPC summer school on correlation in electronic structure theory <<https://quantique.u-strasbg.fr/ISTPC/>>.
- **Scientific Committee member**, "New horizons in density functional theory" Faraday Discussion, 2 - 4 September 2020, Online, United Kingdom. <<https://www.rsc.org/events/detail/37136/new-horizons-in-density-functional-theory-faraday-discussion>>
- **Chairman and organizer** of the ICQC satellite meeting on strong electron correlation, June 2018, Strasbourg, France. <<https://quantique.u-strasbg.fr/icqc18-sat-strasbourg/index.php>>.