Curriculum vitae

Azzedine BOUSSEKSOU,

Born in December 02, 1964,

Exceptional Class Research Director (DRCE2) at the CNRS, France,
Director of the CNRS Coordination Chemistry Institute, Toulouse, France (300 members),
Leader & founder of the "Switchable Molecular Materials" Team LCC-CNRS, Toulouse, (20 members),
Member of the French Academy of Sciences,
Member of the European Academy of Sciences,
Member of the European Academy of Sciences and Arts,
Founding member of the Algerian Academy of Science and Technology.
PI of the Prestigious ERC European Projects on Molecular Materials for artificial Muscles (3 M€ /2021-2026)

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Author over **400 articles** in refereed journals (including 10 invited reviews, 24 VIP/Hot/Editor-selected articles and 13 cover articles), **4 book chapters** and **14 patents**. Azzedine Bousseksou's publications have been cited 20446 times. **H-index (2024) = 77**. These innovative, original and impacting contributions have also been presented in over **110 invited international conferences** and **40 invited seminars**, one invited foreign national lectures (1-week lectures, 2 hours/ day, UNAM, Mexico), over 350 oral/poster contributions. **Organisation of 12 national and international conferences**. **Member of 4 Academies of Sciences**. PI of 10 ANR national projects and regional project (4 M€). PI of the **Advanced ERC** European project (2021-2026, 3 M€).

ACADEMIC CAREER

2013-2024	**Director of the CNRS Laboratory of Coordination Chemistry**, Toulouse, France (over 260 staff, 14 research teams and 16 technical platforms, with **€5 million/per year income** on average)
2011 – 2013	**Deputy Director** of the CNRS Laboratory of Coordination Chemistry, France
2005	Promotion to '**Research Director**' at the CNRS, **first class** (2011), **Exceptional** Class (2017)
2003 – Present	**Funding and Head of the Switchable Molecular Materials team** of the CNRS Laboratory of Coordination Chemistry (currently composed of 18 researchers, including chemists, physicists and theoreticians). The team has been awarded by the research price (*Prix de la recherche 2011*). Its multidisciplinary and remarkable activity was cited as a highlight in the News & Views section of *Nature Chemistry* in January and March 2010….
2000	**Habilitation diploma** of the University of Toulouse for 'research direction'
1997 – 1998	**Invited visiting Professor** at the Queen's University of Belfast, UK
1993 – 2005	**Permanent CNRS Researcher,** CNRS Laboratory of Coordination Chemistry, France
1992 – 1993	**Assistant Professor** – Pierre and Marie Curie University (Paris 6), France
1991 – 1991	**Alexander Von Humboldt fellow** at Mainz University, Germany
1989 – 1992	**PhD in Material Sciences** – Pierre and Marie Curie University (Paris 6), France

AWARDS AND HONOURS

2022	Science Price of the Occitan Academy of Science and Arts
2020	Prestigious Süe Price of the French Society of Chemistry
2020	CNRS Excellence distinction (France)
2015	Founding member of the Algerian Academy of Science and Technology
2014	Member of the European Academy of Sciences
2014	Montpellier University Medal
2014	CNRS Excellence distinction (France)
2013	Member of the European Academy of Sciences and Arts
2013	Member of the French Academy of Sciences
2013	Award of the Coordination Chemistry Division of the French Chemical Society
2012	Korean Magnetism Society Prize
2012	DGRSDT Algerian distinction of research
2011	Research Prize 2011 – Chemistry (Prix de la Recherche 2011)
2010	CNRS Prestige Silver Medal (Médaille d'Argent du CNRS)
2009	Langevin Award of the French Academy of Sciences
2003	Price of the French Chemical Society (SFC)

MAJOR SCIENTIFIC ACHIEVEMENTS AND PUBLICATION METRICS

Internationally renowned and creative researcher with an outstanding research track record in the fields of molecular switches and molecular magnetism. Considered as the current **world-leading scientist** in the field of spin crossover materials, highlighted by numerous recent invited reviews (*Chem. Soc. Rev. 40, 2011, 3313, Eur. J. Inorg. Chem. 2013, 653, J. Mater. Chem. C 2, 2014, 1360, New J. Chem. 38, 2014, 1834, Beilstein J. Nanotech. 5, 2014, 2230, Magnetochemistry 2, 2016, 18; Coord. Chem. Rev. 308, 2016, 395, Coord. Chem. Rev. 2025*) and invitations to major conferences. Provided major impetus to the development of **pioneering research** on spin crossover nanomaterials, including the synthesis of various nano-objects (nanoparticles, thin films and nanopatterns), the experimental and theoretical analysis of finite size effects in these objects and their integration to a new generation of nanophotonic, nanolectronic and spintronic devices. This highly **interdisciplinary research** activity is based on tools and concepts of Coordination Chemistry, Nanochemistry, Polymer Chemistry, Statistical Physics, Solid-State Physics, Nanotechnology, Microelectronics, Optics and Magnetism.

Key scientific achievements include:

- **The development of a theoretical model of spin crossover** ('Ising-like model', *J. Phys. I France 2, 1992, 1381*), which is today the most used worldwide and **prediction of symmetry breaking phenomena** in spin crossover materials with subsequent experimental validation (*Phys. Rev. Lett. 94, 2005, 107205*).
- **The discovery of a hysteresis loop of the dielectric constant** in spin crossover materials leading to the **first patent of memory device** using spin crossover materials PCT Patent *EP1430552*. **10 additional patents followed** (see section B1c) of which **two are currently in use** including high sensitivity magnetic sensors and thermochromic pigments.
- **The first demonstration of reversible, light-induced spin-state switching at room temperature** aimed for information storage (*Angew. Chem. Int. Ed. 44, 2005, 4069, J. Am. Chem. Soc. 130, 2008, 9019)* and investigation of the associated spatiotemporal dynamics (*Phys. Rev. Lett. 109, 2012, 135702*).
- **The elaboration of the first spin-crossover nano-objects maintaining bistable behaviour at room temperature** including thin films (*Angew. Chem. Int. Ed. 45, 2006, 5786,),* nano-patterns (*Adv. Mater. 19, 2007, 2163),* hybrid fluorescent/plasmonic nano-objects (*Chem. Commun. 50, 2015, 13015, Chem. Commun. 51, 2015, 15198*) and ultrasmall nano-particles (*Angew. Chem. Int. Ed. 47, 2008, 8236)*.
- **The development of a new generation of devices based on spin crossover nanomaterials** including active plasmonic devices (*Nanoscale 5, 2013, 5288*), diffractive gas sensors (*J. Mat. Chem. C 3, 2015, 1277*), nanothermometers (*J. Mater. Chem. 20, 2010, 5499*) as well as nanoelectronic (*Adv. Mater. 25, 2013, 1745*) and spintronic devices (*Adv. Mater. 2016, 10.1002/adma.201601420*).

- **The comprehensive interpretation of finite size effects in spin crossover nano-objects** (*Angew. Chem. Int. Ed. 53, 2014, 10894, Phys. Rev. B 91, 2015, 024422, Phys. Rev. B 90, 2014, 075402, Chem. Phys. Lett. 607, 2014, 10, Phys. Chem. Chem. Phys. 16, 2014, 7358, Phys. Rev. Lett. 110, 2013, 235701),*
- **The recent development of switchable molecule-based materials for micro- and nanoscale actuating applications** (*Nature Commun. 4, 2013, 2607, Coord. Chem. Rev. 308, 2016, 395, Appl. Phys. Lett. 109, 2016, 061903),* Adv. Mater. (2017), Adv. Mater. (2017) DOI: 10.1002/adma.201703862, Mater. Horizons 8, 2021, 3055, Coord. Chem. Rev. 419, 2020, 213396, Sensors Actuators 335, 2022, 113359, J. Mater. Chem. C 10, 2022, 8466, Mater. Adv. 2, 2021, 5057,
- **The recent development of nano-thermometry devices** Nature Comm. 11 (2020) 3611, ACS Appl. Mater Int. 14 (2022) 52140–52148, Adv. Mater. 34, 2022, J. Mater. Chem. C 8, 2020, 8007,
- **Development of hybrid molecular materials with switchable catalysis** Nature, Communications Chemistry 8, article number 47 (2025), Chem. Eur. J. 2025, 31, e202403412,
- **Development of photonic strong coupling light-mater,** *J. Phys. Chem. Lett.* **2023**, 14, 6840−6849,
- **Spatiotemporal dynamics of the Spin Crossover**, Adv. Mater. 2019, 31, 1901361, Chem. Phys. Lett. 2021, 770, 13844, Adv. Mater. 2022, 34, 2105468, Adv. Funct. Mater. 2024, 34, 2403585

COMMISSIONS OF TRUST AND INSTITUTIONAL RESPONSIBILITIES (non-exhaustive list)

2024	Guest Editor Coord. Chem. Rev. "Coordination Chemistry form molecules to Devices"
2022	Associate Editor of the journal "Comptes rendus" of the French Academy of Science
2023	Chair of committee for the evaluation of ICS Strasbourg (HCERES Evaluation)
2022	Guest Editor of ENPI Journal "Chemistry and nanotechnologies"
2018	Guest Editor, CR. French Academy of Science, "Spin Crossover Phenomenon form molecules to Devices"
2016	Guest Editor, Coordination Chemistry Reviews, Elsevier
2016	Member of the Editorial board of J. Inorganic and Organometallic Polymers and Materials
2016	Chair of committee for the evaluation of Institute of Materials in Nantes (HCERES Evaluation)
2015	Member of the Advisory board of ChemistrySelect, Wiley
2012	Member of the national CNRS committee for research evaluation (8 years)
2011	Guest Editor, International Journal of Molecular Sciences, MDPI
2011	Member of Material Science commission of the University of Toulouse
2011	Member of the Toulouse University Senate, Academic Senator
2008	Guest Editor, New Journal of Chemistry, RSC
2007	Member of the board of vice-president of the University of Toulouse

MEMBERSHIPS OF SCIENTIFIC SOCIETIES (non-exhaustive list)

2005–2009	Member of the scientific board of the European Network of Excellence on Molecular Magnetism (MAGMANET)
2006–2010	Coordinator of the COST Action D35: Molecular Spin crossover Phenomenon
2006 – 2013	Member of the scientific board of the French – Japan International research Network on Multifunctional Molecular Materials and Devices.
2007 – 2012	Member of the French – Morocco International Associated Laboratory
2008–2012	Coordinator of the French Research Network on Molecular Switches (33 Laboratories)
Since 2009	Member of the scientific board of the European Institute of Molecular Magnetism (EIMM)
2010 – 2016	Member of the French –Ukraine International associated Laboratory on Molecular Chemistry
Since 2012	Member of the French – Mexican International Associated Laboratory.
Since 2015	President of the Chemistry section of the Algerian Academy of Science and Technology

TEACHING, SUPERVISION OF STUDENTS AND POSTDOCTORAL FELLOWS

Enthusiastic and dedicated mentor and teacher, having **supervised over 30 PhD students** (4 current), **18 Master students** and **25 Post-docs** (4 current), many of whom have developed independent scientific careers

Grant applications

Since 2006 **participation in a total of 18 research projects and networks**: 2 international, 4 European (including COST and FP7-PEOPLE actions), 8 national and 4 regional. From these, I was the Principal Investigator/Coordinator in 1 international, 4 European and 7 national projects including the French network on "Molecular Magnetism and Switchable Molecular Materials" and the France-Japan Network on Multifuctional Molecular Materials). This allowed me to undertake my own team research initiatives, and establish my independent position as a worldwide scientific leader. Recently, I got in 2020 the challenging ERC Advanced grant as PI for 5 years (3 Million €) "*Development of Molecular Materials for Artificial Muscles*".

An established record of attracting external research funding with **over 13 million € competitively won since 2006** from government bodies (e.g. *Agence Nationale de la Recherche* – ANR), research councils (e.g. *Contrats de Plan État-Région* – CPER), overseas governments, the EU and private companies.