

Curriculum vitae

Azzedine BOUSSEKSOU

- Born: December 02, 1964, Algiers
- Exceptional Class Research Director (DRCE2) at the CNRS, France,
- Former Director of the CNRS Coordination Chemistry Institute, Toulouse, France (~ 270 members),
- Founder & Leader 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, President of the Chemistry section,
- PI of the Prestigious ERC European Projects on Molecular Materials for artificial Muscles (3 M€ /2020-2026)
- PI of the regional CPER Nanomat project (4 laboratories, 4 M€)
- Co-Director of Franco-Japanese common Laboratory (8 years)
- PI of Talent Franco-Chinese project (4 M€) (under examination)



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Author over **400 articles** in refereed journals (including 12 invited reviews, 24 VIP/Hot/Editor-selected articles and 13 cover articles), **4 book chapters** and **21 patents (2 in use)**. Azzedine Bousseksou's publications have been cited 21870 times. **H-index (2025) = 79**. **Guest Editor** of Coordination Chem. Rev, **Associate Editor** of “Comptes Rendus de l'Académie des Sciences” (FR). These innovative, original and impacting contributions have also been presented in over **120 invited international conferences** and **50 invited seminars**, one invited foreign national lectures (1-week lectures, 2 hours/ day, UNAM, Mexico), over 350 oral/poster contributions. **Organisation of 14 national and international conferences**. **Member of 4 Academies of Sciences**. PI of 10 ANR national projects and regional project (8 M€). PI of the **Advanced ERC** European project (2021-2026, 3 M€). Co-Director of Franco-Japanese common Laboratory (8 years), PI of Talent Chinese project (4 M€).

ACADEMIC CAREER

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| 2013-2025 | 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 (<i>Prix de la recherche 2011</i>). Its multidisciplinary and remarkable activity was cited as a highlight in the News & Views section of <i>Nature Chemistry</i> 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, nanoelectronic 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
- **Development of artificial muscles, from molecules to controlled motion**, *Nature Commun.* 4 (**2013**) 2607, *Coord. Chem. Rev.* 308 (**2016**) 395-40; *Angew. Chem. Int. Ed.* 56 (**2017**) 8074-8078; *Adv. Mater.* 30 (**2018**) 1703862; *Mater. Horizons* 8 (**2021**) 3055-3062 (Cover paper),
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