

CURRICULUM VITAE



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PROFESSIONAL EXPERIENCE

Since 2019	Associate Professor at the "Ecole Nationale Supérieure de Chimie de Rennes", UMR CNRS 6226 ISCR.
2015-2016	Half-time researcher at the "Université de Lorraine", UMR CNRS 7565 SRSMC.
2011-2019	Assistant Professor at the "Ecole Nationale Supérieure de Chimie de Rennes", UMR CNRS 6226 ISCR.
2010-2011	Postdoctoral fellow - Laboratory of Organic Chemistry (ETH Zürich). Direction: François Diederich.
2007-2010	PhD thesis at the "Laboratoire de Chimie Organo-Minérale". Supervision: Jean-Pierre Sauvage and Jean-Paul Collin (Strasbourg). Teaching at the University of Strasbourg.

EDUCATIONAL BACKGROUND

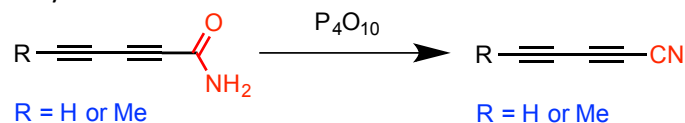
2019	Habilitation to lead research (HDR)
2007-2010	PhD thesis at the "Laboratoire de Chimie Organo-Minérale". Supervision: Jean-Pierre Sauvage and Jean-Paul Collin, Strasbourg (France).
2006-2007	Master 2 « Chimie Moléculaire et Supramoléculaire », University of Strasbourg.
2005-2006	Studies of chemistry at the Ecole Normale Supérieure, Cachan (France). Laureate of the "agrégation" in chemistry.
2003-2005	Studies of chemistry at the Ecole Normale Supérieure, Paris (France).

CURRENT RESEARCH INTERESTS

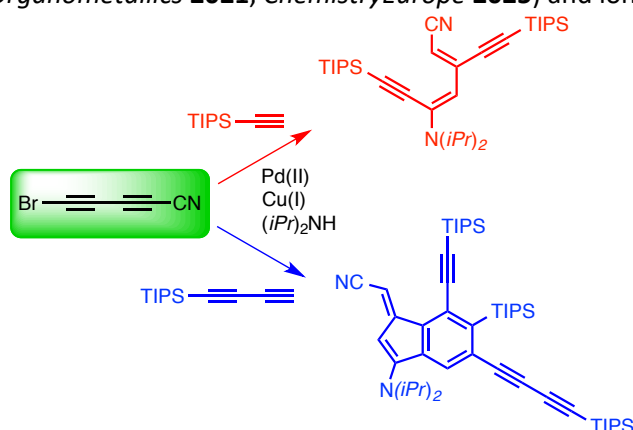
1) The interstellar organic chemistry

Following the idea that the main building blocks of life could have been brought on Earth from the interstellar medium (panspermy theory), we are willing to understand which kind of organic molecules are present in space, why, and what could be the relationship between them and prebiotically relevant compounds. In particular, we are interested in cyanopolynes ($H-(C\equiv C)_n-CN$) and derivatives. We published new syntheses of cyanobutadiyne

(*Angew. Chem. Int. Ed.* **2005**), methylcyanobutadiyne (*Chem. Eur. J.* **2013**, *J. Org. Chem.* **2016**) and cyanohexatriyne (*Chem. Eur. J.* **2026**). We also perform photolyses experiments in the gas phase in order to understand how these molecules could be formed in the interstellar medium, and experiments in condensed phase to examine their reactivity.

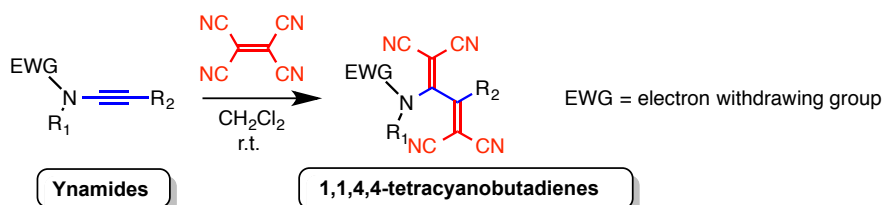


To synthesize the following members of this family, we synthesized the bromocyanobutadiyne ($\text{Br}-\text{C}\equiv\text{C}-\text{C}\equiv\text{C}-\text{CN}$) and reacted it with terminal acetylenes. Contrary to what was anticipated, the corresponding cyanopolyyne were not obtained but other complex molecules were isolated, following an unprecedented mechanism (*Chem. Eur. J.* **2015**, *Helv. Chim. Acta* **2019**). Alkyne metathesis is now currently under investigation to generate conjugated triynes (*Chem. Science* **2020**, *Organometallics* **2021**, *ChemistryEurope* **2025**) and longer polyyne.



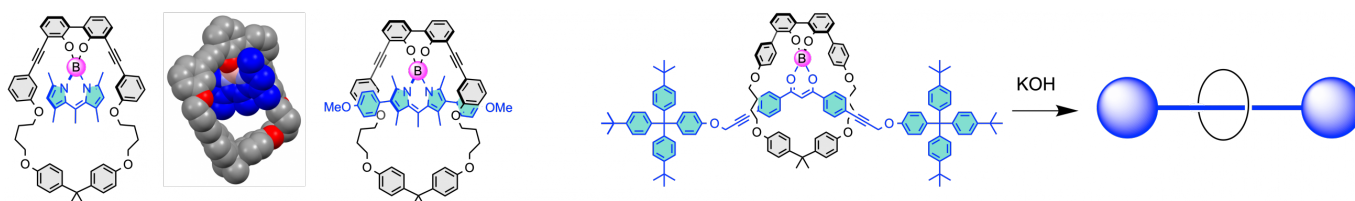
2) The synthesis and characterization of new 1,1,4,4-tetracyanobutadienes

We recently showed that a certain number of ynamides reacted very well with tetracyanoethylene to give 1,1,4,4-tetracyanobutadienes (TCBDs) in high yields, following a sequence of [2+2]cycloaddition-[2+2]retroelectrocyclization (*Chem. Eur. J.* **2014**; *Chem. Asian J.* **2017**). We are currently taking profit of the exceptional electron-withdrawing abilities of the TCBD group to tune the optoelectronic properties of some π -extended compounds (*Chem. Eur. J.* **2018**, *Chem. Comm.* **2020**, *Org. Lett.* **2021**, *Chem. Eur. J.* **2022**, *Tetrahedron Chem.* **2023**).



3) Synthesis and study of boron-assemblies

We recently demonstrated that it was possible to use boron to thread a linear molecule through a macrocycle (*Angew. Chem. Int. Ed.* **2024**; *ChemistryOpen* **2024**; *Org. Lett.* **2025**). When the thread is a BODIPY, the corresponding species are highly fluorescent with the macrocycle we used. It is also possible to thread a beta-diketone, although in that case no fluorescence was observed. However, after adding two stoppers and removing boron, we isolated a rotaxane through this methodology.



PUBLICATIONS

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- 53)** J. Escudero, J. Long, D. Bouëtard, J. Morvan, M. Kooghard, A. Neitzel, D. Bockfeld, S. Nwachukwu, T. Roisnel, R. R. Tykwinski, M. Tamm, M. Mauduit, Y. Trolez, "Synthesis of Conjugated Linear and Cyclic Polyynes by Selective Alkyne Metathesis", *Angew. Chem. Int. Ed.* **2026**, 65:e23344
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- 50)** M. Hicguet, O. Mongin, Y. Leroux, T. Roisnel, F. Berrée, Y. Trolez, "Synthesis and Optoelectronic Properties of Threaded BODIPYs", *ChemistryOpen* **2024**, e202400196
- 49)** M. Hicguet, L. Verrieux, O. Mongin, T. Roisnel, F. Berrée, A. Fihey, B. Le Guennic, Y. Trolez, "Threading a Linear Molecule Through a Macrocyclic Boron: Optical Properties of the Threaded Species and Synthesis of a Rotaxane", *Angew. Chem. Int. Ed.* **2024**, 63, e202318297
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- 47)** L. Lemiègre, Y. Trolez, "A mechanistic study about the formation of tetracyanobutadienes revealed an autocatalytic behavior", *Asian J. Org. Chem.* **2023**, e202300321
- 46)** M. Roger, Y. Bretonnière, Y. Trolez, A. Vacher, I. Arbouch, J. Cornil, F. Gautier, J. De Winter, S. Richeter, S. Clément, P. Gerbier, *Int. J. Mol. Sci.* **2023**, 24, 8715
- 45)** A. Quelhas, T. Roisnel, J.-C. Guillemin, Y. Trolez, *Molbank* **2023**, 1, M1599
- 44)** C. Philippe, J. Melan, A. Barsella, T. Vives, Y. R. Leroux, F. Robin-Leguen, L. Lemiègre, D. Jacquemin, S. Gauthier, Y. Trolez, *Tetrahedron Chem* **2023**, 5, 100036
- 43)** C. Philippe, M. Coste, Y. Bretonnière, L. Lemiègre, S. Ulrich, Y. Trolez, « Quadruple Functionalization of a Tetraphenylethylene Aromatic Scaffold with Ynamides or Tetracyanobutadienes: Synthesis and Optical Properties », *Eur. J. Org. Chem.* **2022**, e202200049
- 42)** C. Philippe, A. T. Bui, M. Beau, H. Bloux, F. Riobé, O. Mongin, T. Roisnel, M. Cordier, F. Paul, L. Lemiègre, Y. Trolez, Synthesis and Photophysical Properties of 1,1,4,4-Tetracyanobutadienes Derived from Ynamides Bearing Fluorophores, *Chem. Eur. J.* **2022**, 28, e202200025
- 41)** A. Quelhas, H. Gazzeh, T. Roisnel, Y. Trolez, J.-C. Guillemin, "Passerini and Ugi reactions involving kinetically unstable isocyanides", *Eur. J. Org. Chem.* **2021**, 6002-6005
- 40)** N. Ripoche, M. Betou, C. Philippe, Y. Trolez, O. Mongin, M. Dudek, Z. Pokladek, K. Matczyszyn, M. Samoc, H. Sahnoune, J.-F. Halet, T. Roisnel, L. Toupet, M. Cordier, G. Moxey, M. G. Humphrey, F. Paul, "Two-photon

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- 39)** M. L. Zier, S. Colombel-Rouen, H. Ehrhorn, D. Bockfeld, Y. Trolez, M. Mauduit, M. Tamm, "Catalytic alkyne and diyne metathesis with mixed fluoroalkoxy-siloxy molybdenum alkylidyne complexes", *Organometallics* **2021**, 40, 2008-2015
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- 36)** A. T. Bui, C. Philippe, M. Beau, N. Richy, M. Cordier, T. Roisnel, L. Lemiègre, O. Mongin, F. Paul, Y. Trolez, "Synthesis, characterization, and unusual near-infrared luminescence of 1,1,4,4-tetracyanobutadiene derivatives", *Chem. Comm.* **2020**, 56, 3571-3574
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- 34)** Y. Trolez, "The Domino Hexadehydro-Diels-Alder Reaction: An Elegant Way toward Polyacenes, *Chem* **2018**, 4, 2272-2274
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- 32)** Y. Trolez, A. D. Finke, F. Silvestri, F. Monti, B. Ventura, C. Boudon, J.-P. Gisselbrecht, W. B. Schweizer, J.-P. Sauvage, N. Armaroli, F. Diederich, "Unconventional Synthesis of a Cu(I)-Rotaxane With a Superacceptor Stopper: Ultrafast Excited-State Dynamics and Near-Infrared Luminescence", *Chem. Eur. J.* **2018**, 24, 10422-10433
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