

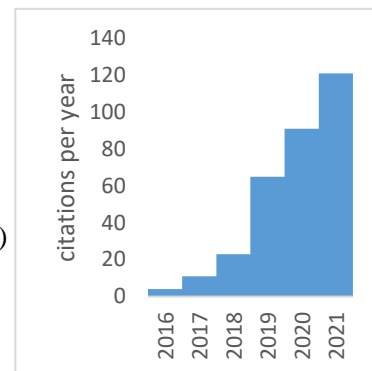
Cousin, Samuel François



- **Web of Science** [W-1899-2018](#)
- **ORCID** [0000-0002-7021-478X](#)

Born 4th of October 1990 in France

Articles: 21
Reviews: 2
Patent: 1
Book Chapter: 1
Citations: 319 (Google Scholar)
h-index: 8
i10-index: 7



https://www.researchgate.net/profile/Samuel_Cousin

Education and Research

- 2021- **Postdoctoral research associate:**
Crystallization studied by MAS-DNP.
Giulia Mollica, Université d'Aix Marseille– ICR - SACS, Marseille, France
- 2018- **Postdoctoral research associate:**
2020 *Developing hyperpolarization methods, theory, and applications*
Sami Jannin, Centre de Résonance Magnétique à très haut champs – CRMN, Villeurbanne, France
- 2017 **Postdoctoral research associate:**
Reconstruction technics for spatially encoded MRI.
Lucio Frydman, Weizmann Institute of Science – Rehovot, Israel
- 2013- **PhD in biophysics:**
2016 *Two-field nuclear magnetic resonance: spectroscopy and relaxation.*
Fabien Ferrage, École Normale Supérieure de Paris, ENS, Paris, France
- 2013 **M. Sc. Internship:**
MRI in rotating field.
Dimitry Sakellarios Commissariat à l'énergie Atomique et des Énergie Alternative CEA², Saclay, France
- 2012 **M. Sc. Internship:**
Radiochemistry of ¹³N for PET-contrast agent.
Antony Gee, Kings College London, London, England.
- 2010- **License and Master at the ENS Paris (étudiant Normalien)**
2013 *Specialty in Organic Chemistry*

Teaching Activities

- PhD
- 112H in 6 different topics at UPMC university
 - NMR course for PSL* (L3) in collaboration with Fabien Ferrage
 - NMR practical for ENS (M1) for Geoffrey Bodenhausen
 - NMR tutorial for ENS (M2) for Geoffrey Bodenhausen
- Scientific
Vulgarization
- Organization of 6 scientific coffees in Tel Aviv, with the help of the “Ministère des Affaires Étrangères”
 - Organization of 3 cycles of 10 conferences (Les Ernest) at the ENS ([link](#))
 - Writing of 30 articles of scientific vulgarization for the Ministère des affaires étrangère ([Link](#))
 - 3 confidential technological notes for the French Government

Co-supervision

- PhD students
- Romain Chèvre (20 % - 2021)
 - Quentin Chappuis (30 % - 2018,2020)
 - Morgan Ceillier (20 % - 2018,2020)
 - Theo El Darai (20 % - 2018,2020)
 - Arianna Ferrari (20 % - 2018,2019)
- Master Thesis
- Paul-Emmanuel Edeline (50 % - 2020)
 - Nicolas Vandeschricke (20 % - 2018)
 - Amelie Beck (20 % - 2018)
 - Nicolas Bolik-Coulon (40 % - 2016)

Prizes and Fellowships

- Prizes
- **Student travel Stipend** for EUROMAR 2018 and EUROMAR 2016
 - **PhD Prize**, Delivered by the French National Society of Chemistry in the category of Theoretical Chemistry and Analytical Chemistry, **June 2017** (1 per year)
 - **Magna Cum Laud (ISMIRM), June 2018** (10% best abstract)
- Fellowships
- **Postdoctoral scholarship from the French Institute of Tel Aviv** 2/3 of the salary for one year
 - **Postdoctoral Dean Fellowship Weizmann, MS-SPEN, July 2018** ½ of the salary for 2 years.

Scientific publications and Patent

Patent

EP15290102. Ferrage F., Cousin S.F., Charlier C., Marquardsen T., Tyburn J.M., Method for two-field nuclear magnetic resonance measurements

Articles 2021

- 23. An automated system for fast transfer and injection of hyperpolarized solutions.** Ceillier M., Cala O., El Darai T., Cousin S.F., Stern Q., Guibert S., Elliott S.J., Bornet A., Vuichoud B., Milani J., Pages C., Eshchenko D., Kempf J.G., Jose C., Lambert S.A., Jannin S., Journal of Magnetic Resonance, 8-9: 100017
- 22. Boosting Dissolution-Dynamic Nuclear Polarization by Multiple-Step Dipolar Order Mediated $1\text{H} \rightarrow 13\text{C}$ Cross-Polarization,** Elliott S.J., Cala O., Stern Q., Cousin S.F., Ceillier M., Decker V., Jannin S., J.M.R. Open, In Press.
- 21. Porous Functionalized Polymers enable Generating and Transporting Hyperpolarized Arbitrary Solutions.** El Darai T., Cousin S.F.*, Stern Q., Ceillier M., Kempf J.G., Eshchenko D., Melzi R., Schnell M., Gremillard L., Bornet A., Milani J., Vuichoud B., Cala O., Montarnal D., Jannin S. Nat. Commun. 12.4695
- 20. Pulse Sequence and Sample Formulation Optimization for Dipolar Order Mediated $1\text{H} \rightarrow 13\text{C}$ Cross-polarization,** Elliott S.J., Cala O., Stern Q., Cousin S.F., Eshchenko D., Melzi R., Kempf J.G., Jannin S., PCCP, (23)14. P. 9457-9465
- 19. Practical Dissolution Dynamics Nuclear Polarization,** Elliott S.J., Stern Q., Ceillier M., El Darai T., Cousin S.F., Cala O., Jannin S., Prog. Nuc. Mag. Res. Spec. May, 126-127, (89-100)
- 18. Simultaneous Multi-banding and Multi-echo Phase Encoding for the Accelerated Acquisition of High-Resolution Volumetric Diffusivity Maps by Spatiotemporally Encoding MRI,** Lincgeng M., Otkovs M., Cousin S.F., Liberman G., Bao Q., Frydman L., MRI, 79:130-139
- 17. Direct observation of hyperpolarization breaking through the spin diffusion barrier,** Chappuis-Stern Q., Cousin S.F., Mentink-Viger F, Pinon A.C., Elliott S.J., Cala O., Jannin S., Science Adv., Vol 7 Issue 18

Articles 2020

- 16. Hyperpolarized NMR Metabolomics at Natural ^{13}C Abundance,** Dey A., Charrier B., Martineau E., Deborde C., Gandriaux E., Moing A., Jacob D., Eshchenko D., Schnell M., Melzi R., Kurzbach D., Ceillier M., Chappuis Q., Cousin S.F., Kempf J.G., Jannin S., Dumez J.N., Giraudeau P., Anal. Chem., 92, 22,14867-17871
- 15. Dipolar order mediated $1\text{H} \rightarrow 13\text{C}$ cross-polarization for dissolution-dynamic nuclear polarization,** Elliott S.J., Cousin S.F., Chappuis Q., Cala O., Ceillier M., Bornet A., Jannin S., Mag Res, 1, 89-96
- 14. Theoretical and Computational Framework for the Analysis of the Relaxation Properties of Arbitrary Spin Systems. Application to High-Resolution Relaxometry.** Bolik-Coulon N., Kaderavek P., Pelupessy P., Dumez J.N., Ferrage F., Cousin S.F.*, Journal of Magnetic Resonance, 313, 106718

Articles 2019

- 13. Protein Dynamics from Accurate Low-Field Site-Specific Longitudinal and Transverse Nuclear Spin Relaxation** Kaderavek P., Bolik-Coulon N., Cousin S.F., Thorsten Marquardsen, Jean-Max Tyburn, Jean-Nicolas Dumez, Ferrage F., JPCL, 2019, 10,19,5917-5922
- 12. Understanding the Methyl-TROSY effect over a wide range of magnetic fields.** Bolik-Coulon N., Cousin S.F., Kaderavek P., Dumez J.N., Ferrage F., JCP., 2019, 150, 224202
- 11. A regularized reconstruction pipeline for high definition diffusion MRI in challenging regions incorporating a per-shot image correction.** Cousin S.F., Gilad Liberman, Eddy Solomon, Martins Otikovs, Lucio Frydman, MRM, 2019, Oct; 82(4):1322-1330. PMID: 31166043

Articles 2018

- 10. Time-resolved protein side-chain motions unravelled by high-resolution relaxometry and molecular dynamics simulations.** Cousin S.F. *, Kaderavek P.,* Bolik-Coulon N.,* Gu Y., Charlier C., Carlier L., Bruschweiler-Li L., Marquardsen T., Tyburn J.M., Bruschweiler R., Ferrage F., JACS., 2018, 41, 13456-13465
- 9. Looped-PROjected Spectroscopy (L-PROSY): A simple approach to enhance backbone/sidechain cross-peaks in 1H NMR.** Novakovic M., Cousin S.F., Jaroszewicz M., Rosenzweig R., Frydman L., JMR., 2018, 294, 169-180
- 8. Hyperpolarized NMR: d-DNP, PHIP, and SABRE.** Kovtunov K.V., Pokochueva E., Salnikov O., Cousin S.F., Dennis Kurzbach, Basile Vuichoud, Sami Jannin, Eduard Chekmenev, Boyd Goodson, Danila Barskiy, Igor Koptug Chem.–Asian J.}
- 7. Determination of Protein ps-ns Motions by High-Resolution Relaxometry,** Cousin S.F., Kadeřávek P., Bolik-Coulon N., Ferrage F. n: Ghose R. (eds) Protein NMR. Methods in Molecular Biology, vol 1688. Humana Press, New York, NY

Articles 2017

- 6. Full correlations across broad NMR spectra by two-field total correlation spectroscopy.** Kaderavek P., Strouk L., Cousin S.F., Charlier C., Bodenhausen G., Marquardsen T., Tyburn J.M., Bovier P.A., Engelke F., Maas W., Ferrage F., ChemPhysChem, 2017, 1018, 169-203
- 5. Convergent synthesis of ¹³N-labelled Peptidic structures using aqueous [¹³N]NH₃.** Blower J.E., Cousin S.F., Gee A.D., EJNMMI Radiopharmacy and Chem., 2017, 2, 16

Articles 2016

- 4. Protein dynamics from nuclear magnetic relaxation.** Charlier C. *, Cousin S.F. *, Ferrage F., Chem. Soc. Rev., 2016, 45, 2410-2422
- 3. Recovering Invisible Signals by Two-Field NMR Spectroscopy.** Cousin S.F. *, Kadeřávek P. *, Haddou B., Charlier C., Marquardsen T., Tyburn J.M., Bovier P.A., Engelke F., Maas W., Bodenhausen G., Pelupessy P., Ferrage F., Angew Chem int Ed Engl, 2016, 55, 9886-9889
- 2. High-Resolution Two-Field Nuclear Magnetic Resonance.** Cousin S.F. , Charlier C., Kadeřávek P., Marquardsen T., Tyburn J.-M., Bovier P.-A., Ulzega S., Speck T., Wilhelm D., Engelke F., Maas W., Sakellariou D., Bodenhausen G., Pelupessy P., Ferrage F., PCCP, 2016, 18(48):33187-33194
- 1. Dissolution DNP of Deuterated Molecules.** Kurzbach D., Weber E., Jhajharia A., Cousin S.F. , Sadet A., Mar-habaie S., Canet E., Birlirakis N., Milani J., Jannin S., Eschenko D., Melzi R., Luetolf S., Sacher M., Kempf J., Weller M., Bodenhausen G., Abergel D., The Journal of Chemical Physics, 2016, 145(19)

Conferences

- | | |
|---------------------|---|
| Oral presentation | - Intercontinental NMR Conferences on Methods and Applications - ICONS2020- Hyperpolarization with HYPOP (Hyperpolarizing Porous Polymers) Polarization and transport, October 2020, Invited Speaker |
| | - Franco-Sino SS-NMR Workshop. International meeting, Generating Transportable Hyperpolarization in Arbitrary Solutions, June 2019, Invited Speaker |
| | - Conference ISMRM. International meeting, MS-SPEN with per-shot correction for high-definition human DTI experiment, June 2018, Promoted talk |
| | - Conférence RMN du grand bassin Parisien. Semi-national meeting, Methyl group dynamics from high-resolution relaxometry, June 2015, Promoted talk |
| | - Conférence RMN du grand bassin parisien. Semi-national meeting, Two-field NMR spectroscopy, January 2016, Promoted talk |
| Poster presentation | - EUROMAR. International meeting, Generating Transportable Hyperpolarization in Arbitrary Solutions, August 2019 |

- **EUROMAR. International meeting**, MS-SPEN, July 2018
- **ENC. International meeting**, High-resolution two-field NMR, April 2016, Award of student travel stipend.
- **EUROMAR. International meeting**, Methyl group dynamics from high-resolution relaxometry, July 2016, Award of student travel stipend
- **ENC. International meeting**, Methyl group dynamics from high-resolution relaxometry, April 2015
- **Advanced Isotopic Labeling Methods for Biological NMR**. International meeting and School, Methyl group dynamics from high-resolution relaxometry, January 2015

Conferences contributions

Conferences 2021

31. HYP21. (Round table, France) **S.F. Cousin**, M. Juramy, S. Jannin, G. Mollica
30. Euromar (Promoted Talk, Online) **T. El Darai**, **S.F. Cousin**, D. Montarnal, A. Ferrari, D. Gajan, M. Ceillier, Q. Chappuis, S. James Elliott, O. Cala, S. Jannin

Conferences 2020

29. Euromar (Promoted Talk, Online) **T. El Darai**, **S.F. Cousin**, D. Montarnal, A. Ferrari, D. Gajan, M. Ceillier, Q. Chappuis, S. James Elliott, O. Cala, S. Jannin
28. ICONS2020 (invited Talk, Online) **S.F. Cousin**,
27. ISMRM (Online): **L. Ma**, M. Otikovs, **S.F. Cousin**, G. Liberman, Q. Bao, L. Frydman

Conferences 2019

25. FFC relax : **T. Marquardsen**, P. Kadeřávek, **S.F. Cousin**, J.-M. Tyburn, F. Ferrage, F. Engelke
24. Gordon (poster): **N. Bolik-Coulon**, **S.F. Cousin**, P. Kadeřávek, Y. Gu, R. Brüschweiler, F. Ferrage
30. Euroismar (poster, Germany): **T. El Darai**, **S.F. Cousin**, D. Montarnal, A. Ferrari, D. Gajan, M. Ceillier, Q. Chappuis, S. James Elliott, O. Cala, S. Jannin
22. Euroismar (poster, Germany): **S. Elliott**, **S.F. Cousin**, Q. Chappuis, O. Cala, A. Bornet, S. Jannin
21. Euroismar (poster, Germany): **L. Ma**, M. Otikovs, **S.F. Cousin**, G. Liberman, Q. Bao, L. Frydman
20. Euroismar (poster, Germany): **M. Ceillier**, T. El Darai, **S.F. Cousin**, C. Jose, C. Pages, L. Esteffe, J. Milani, B. Vuichoud, Q. Chappuis, O. Cala, S. Jannin
19. Euroismar (poster, Germany): **S.F. Cousin**, T. El Darai, Q. Chappuis, O. Cala, m. Ceillier, A. Ferrari, D. Gajan, D. Montarnal, S. Jannin
18. Euroismar (promoted talk, Germany) : **Quentin Chappuis**, **S.F. Cousin**, S. J. Elliott, O. Cala, S. Jannin
17. Alpine Conference (promoted talk, France) : **Quentin Chappuis**, **S. F. Cousin**, S. J. Elliott, O. Cala, S. Jannin
16. ENC (poster, Germany) : **S. J. Elliott**, **S. F. Cousin**, Q. Chappuis, O. Cala, A. Ferrari, M. Ceillier, T. El Darai, S. Jannin
15. ENC (promoted talk, Germany) : T. El Darai, **S.F. Cousin**, D. Montarnal, A. Ferrari, D. Gajan, M. Ceillier, Q. Chappuis, S. James Elliott, O. Cala, **S. Jannin**

Conferences 2018

14. ISMRM (Promoted Talk, France): **S.F. Cousin**, G. Liberman, M. Otikovs , Q. Bao, L. Frydman
13. Euromar (Promoted Talk, France): **O. Cala**, H.-E. Bougazhi, A. Beck, B. Vuichoud, M. Ceillier, **S.F. Cousin**, S. Jannin
12. Euromar (poster, France): **M. Novakovic**, **S.F. Cousin**, M.J. Jaroszewicz, L. Frydman
11. Euromar (promoted talk, France) : **M. Ceillier**, T. El Darai, **S.F. Cousin**, C. Jose, C. Pages, L. Esteffe, J. Milani, B. Vuichoud, Q. Chappuis, O. Cala, S. Jannin
10. Euromar (poster, France) : **S.F. Cousin**, G. Liberman, M. Otikovs , Q. Bao, L. Frydman

Conferences 2017

9. ENC (poster, USA): **P. Kadeřávek**, **S.F. Cousin**, N. Bolik-Coulon, T. Marquarden, J.-M. Tyburn, J.-N. Dumez, F. Ferrage
8. EUROMAR (Promoted Talk, Poland): **S.F. Cousin**, P. Kadeřávek, N. Bolik-Coulon, C. Charlier, T. Marquardsen, J.-M. Tyburn, J.-N. Dumez, **F. Ferrage**

Conferences 2016

7. ICMRBS (Poster, Japon): P. Kadeřávek, **S.F. Cousin**, C. Charlier, T. Marquardsen, J.-M. Tyburn, F. Engelke, W. Maas, G. Bodenhausen, P. Pelupessy, **F. Ferrage**
6. Euromar (Poster, Denmark): **S.F. Cousin**, P. Kadeřávek, F. Ferrage
5. ENC (poster, USA): **P. Kadeřávek**, L. Strouk, **S.F. Cousin**, C. Charlier, T. Marquardsen, J.-M. Tyburn, F. Engelke, W. Maas, G. Bodenhausen, P. Pelupessy, F. Ferrage
4. ENC (promoted Talk, USA): **S.F. Cousin**, P. Kadeřávek, B. Haddou, C. Charlier, T. Marquardsen, J.-M. Tyburn, P.-A. Bovier, F. Engelke, W. Maas, G. Bodenhausen, P. Pelupessy, **F. Ferrage**

3. ENC (poster, USA): **S.F. Cousin**, C. Charlier, P. Kadeřávek, T. Marquardsen, J.-M. Tyburn, P.-A. Bovier, F. Engelke, W. Maas, D. Sakellariou, G. Bodenhausen, P. Pelupessy, F. Ferrage

Conferences 2015

2. ENC (poster, USA): **S.F. Cousin**, Cyril Charlier and Fabien Ferrage
1. AILM (poster, France): **S.F. Cousin**, Cyril Charlier and Fabien Ferrage