
Max-Planck-Institut für Radioastronomie
Auf dem Hügel 69
D-53121 Bonn (Germany)

belloche@mpifr-bonn.mpg.de
Phone: +49-228-525376
French, born 1975, married, two children

Research

- since 2014* : Research staff, **Max-Planck Institute for Radio Astronomy**
(Bonn, Germany)
- 2003 – 2013* : Research assistant, **Max-Planck Institute for Radio Astronomy**
(Bonn, Germany)
- 2002 – 2003* : Research assistant, **Ecole Normale Supérieure** (Paris, France)

Education

- 1999 – 2002* : **Doctoral thesis** in Astrophysics, Commissariat à l’Energie Atomique Saclay and Paris-Sud University (France). Advisors: Drs Ph. André and D. Despois

Student supervision

- since Jan. 2024* : **Doctoral thesis** of Youxin Wang
(in collaboration with Prof. Dr. Karl Menten, MPIfR, Bonn)
- Mar. 2020 – Dec. 2023* : **Doctoral thesis** of Laura Busch (defended in December 2023)
(in collaboration with Prof. Dr. Karl Menten, MPIfR, Bonn)
- Oct. 2015 – Jun. 2019* : **Doctoral thesis** of Mélisse Bonfand (defended in June 2019)
(in collaboration with Prof. Dr. Karl Menten, MPIfR, Bonn)
- Jun. 2015 – Mar. 2019* : **Doctoral thesis** of Vivien Thiel (defended in March 2019)
(in collaboration with Prof. Dr. Karl Menten, MPIfR, Bonn)
- Jan. 2014 – Jan. 2015* : **Doctoral thesis** of Tien-Hao Hsieh (defended in Sept. 2015)
(in collaboration with Prof. Dr. Shih-Ping Lai, NTHU, Taiwan)
- Sep. 2010 – Mar. 2014* : **Doctoral thesis** of Anastasia Tsitali (defended in April 2014)
(in collaboration with Prof. Dr. Karl Menten, MPIfR, Bonn)
- Oct. 2014 – Oct. 2015* : **Master thesis** of Aida Ahmadi (defended in October 2015)
(in collaboration with Prof. Dr. Karl Menten, MPIfR, Bonn)
- since 2009* : several two-week **internships** of high-school students

Scientific duties

- MPIfR staff representative in the CPT Section of the Max Planck Society (since 2022)
- Member of APEX German proposal evaluation committee (since 2009)
- Member of ESO-ARO proposal evaluation committee (2015)
- Member of scientific committee of French national program PCMI (2014–2021)

Referee for A&A, ApJ, MNRAS, PASJ, Nat. Comm., Protostars & Planets
Referee for French (ANR, AGIR, DIM), German (Leopoldina), Dutch (NWO), Polish (NSC)
research grant applications
Coordinator of colloquia at MPIfR (2017–2022)

Reviews

1. Jørgensen, J. K., **Belloche, A.**, & Garrod, R. T. **2020**, ARA&A, 58, 727
“Astrochemistry During the Formation of Stars”
2. **Belloche, A.** **2013**, in “Angular momentum transport during star formation and evolution”, Eds. P. Hennebelle and C. Charbonnel, EAS Publications Series, 62, 25
“Observation of rotation in star forming regions: clouds, cores, disks, and jets”

Refereed articles

1. Müller, H. S. P., Ilyushin, V. V., **Belloche, A.**, Lewen, F. Schlemmer, S. **2024**, A&A, 688, A201
“Investigation of the rotational spectrum of $\text{CH}_3^{17}\text{OH}$ and its tentative detection toward Sagittarius B2(N)”
2. Harju, J., Vastel, C., Sipilä, O., Redaelli, E., Caselli, P., Pineda, J. E., **Belloche, A.**, Wyrowski, F. **2024**, A&A, 688, A117
“A low cosmic-ray ionisation rate in the pre-stellar core Ophiuchus/H-MM1. Mapping of the molecular ions ortho- H_2D^+ , N_2H^+ , and DCO^+ ”
3. Dhariwal, A., Speak, T. H., Zeng, L., Rashidi, A., Moore, B., Berné, O., Remijan, A. J., Schroetter, I., McGuire, B. A., Rivilla, V. M., **Belloche, A.**, Jørgensen, J. K., Djuricanin, P., Momose, T., Cooke, I. R. **2024**, ApJL, 968, L9
“On the Origin of Infrared Bands Attributed to Tryptophan in Spitzer Observations of IC 348”
4. Harju, J., Pineda, J. E., Sipilä, O., Caselli, P., **Belloche, A.**, Wyrowski, F., Riedel, W., Redaelli, E., Vasyunin, A. I. **2024**, A&A, 682, A8
“Nuclear spin ratios of deuterated ammonia in prestellar cores. LAsMA observations of H-MM1 and Oph D”
5. Busch, L. A., **Belloche, A.**, Garrod, R. T., Müller, H. S. P., Menten, K. M. **2024**, A&A, 681, A104
“Shocking Sgr B2 (N1) with its own outflow. A new perspective on segregation between O- and N-bearing molecules”
6. Gong, Y., Du, F. J., Henkel, C., Jacob, A. M., **Belloche, A.**, Wang, J. Z., Menten, K. M., Yang, W., Quan, D. H., Bop, C. T., Ortiz-León, G. N., Tang, X. D., Rugel, M. R., Liu, S. **2023**, A&A, 679, A39
“Protonated hydrogen cyanide as a tracer of pristine molecular gas”

7. Gyawali, P., Motiyenko, R. A., **Belloche, A.**, Kleiner, I., Ilyushin, V. V., Alekseev, E. A., Gulaczyk, I., Kreglewski, M. **2023**, A&A, 677, A65
“Rotational spectrum and interstellar detection of the first torsionally excited state of methylamine”
8. Müller, H. S. P., Garrod, R. T., **Belloche, A.**, Rivilla, V. M., Menten, K. M., Jiménez-Serra, I., Martín-Pintado, J., Lewen, F., Schlemmer, S. **2023**, MNRAS, 523, 2887
“Rotation-tunnelling spectrum and astrochemical modelling of dimethylamine, CH₃NHCH₃, and searches for it in space”
9. Szabó, Z. M., Gong, Y., Yang, W., Menten, K. M., Bayandina, O. S., Cyganowski, C. J., Kóspál, Á., Ábrahám, P., **Belloche, A.**, Wyrowski, F. **2023**, A&A, 674, A202
“The Effelsberg survey of FU Orionis and EX Lupi objects. II. H₂O maser observations”
10. Szabó, Z. M., Gong, Y., Menten, K. M., Yang, W., Cyganowski, C. J., Kóspál, Á., Ábrahám, P., **Belloche, A.**, Wyrowski, F. **2023**, A&A, 672, A158
“The Effelsberg survey of FU Orionis and EX Lupi objects. I. Host environments of FUors and EXors traced by NH₃”
11. Zou, L., Guillemin, J.-C., **Belloche, A.**, Jørgensen, J. K., Margulès, L., Motiyenko, R. A., Groner, P. **2023**, MNRAS, 520, 4089
“Millimeter-wave spectrum of 2-propanimine”
12. Yan, Y. T., Henkel, C., Menten, K. M., Gong, Y., Nguyen, H., Ott, J., Ginsburg, A., Wilson, T. L., Brunthaler, A., **Belloche, A.**, Zhang, J. S., Budaiev, N., Jeff, D. **2022**, A&A, 666, L15
“Discovery of non-metastable ammonia masers in Sagittarius B2”
13. Koucký, J., Kolesníková, L., Luková, K., Vávra, K., Kania, P., Coutens, A., Loison, J.-C., Jørgensen, J. K., **Belloche, A.**, Urban, Š. **2022**, A&A, 666, A158
“Millimetre-wave spectroscopy of 2-hydroxyprop-2-enal and an astronomical search with ALMA”
14. Sanz-Novo, M., **Belloche, A.**, Rivilla, V. M., Garrod, R. T., Alonso, J. L., Redondo, P., Barrientos, C., Kolesníková, L., Valle, J. C., Rodríguez-Almeida, L., Jimenez-Serra, I., Martín-Pintado, J., Müller, H. S. P., Menten, K. M. **2022**, A&A, 666, A114
“Rotational spectroscopy and astronomical search for n- and i-butanal”
15. Vávra, K., Kolesníková, L., **Belloche, A.**, Garrod, R. T., Koucký, J., Uhlíková, T., Luková, K., Guillemin, J.-C., Kania, P., Müller, H. S. P., Menten, K. M., Urban, Š. **2022**, A&A, 666, A50
“Millimeter wave spectrum and search for vinyl isocyanate toward Sgr B2(N) with ALMA”
16. Busch, L. A., **Belloche, A.**, Garrod, R. T., Müller, H. S. P., Menten, K. M. **2022**, A&A, 665, A96
“Resolving desorption of complex organic molecules in a hot core. Transition from non-thermal to thermal desorption or two-step thermal desorption?”

17. Margulès, L., Remijan, A., **Belloche, A.**, Motiyenko, R. A., McGuire, B. A., Xue, C., Müller, H. S. P., Garrod, R. T., Menten, K. M., Guillemin, J.-C. **2022**, A&A, 663, A132
“Submillimeter wave spectroscopy and astronomical search for 1-propanimine”
18. Zingsheim, O., Maßen, J., Müller, H. S. P., Heyne, B., Fatima, M., Bonah, L., **Belloche, A.**, Lewen, F., Schlemmer, S. **2022**, A&A, 662, A111
“Rotational spectroscopy of n-propanol: Aa and Ag conformers”
19. **Belloche, A.**, Garrod, R. T., Zingsheim, O., Müller, H. S. P., Menten, K. M. **2022**, A&A, 662, A110
“Interstellar detection and chemical modeling of iso-propanol and its normal isomer”
20. Bouscasse, L., Csengeri, T., **Belloche, A.**, Wyrowski, F., Bontemps, S., Güsten, R., Menten, K. M. **2022**, A&A, 662, A32
“Sulphur-rich cold gas around the hot core precursor G328.2551-0.5321. An APEX unbiased spectral survey of the 2 mm, 1.2 mm, and 0.8 mm atmospheric windows”
21. Kolesníková, L., **Belloche, A.**, Koucký, J., Alonso, E. R., Garrod, R. T., Luková, K., Menten, K. M., Müller, H. S. P., Kania, P., Urban, Š **2022**, A&A, 659, A111
“Laboratory rotational spectroscopy of acrylamide and a search for acrylamide and propionamide toward Sgr B2(N) with ALMA”
22. Remijan, A., Xue, C., Margulès, L., **Belloche, A.**, Motiyenko, R. A., Carder, J., Codella, C., Balucani, N., Brogan, C. L., Ceccarelli, C., Hunter, T. R., Maris, A., Melandri, S., Siebert, M., McGuire, B. A. **2022**, A&A, 658, A85
“Expanding the submillimeter wave spectroscopy and astronomical search for thioacetamide (CH₃CSNH₂) in the ISM”
23. Kisiel, Z., Kolesníková, L., **Belloche, A.**, Guillemin, J.-C., Pszczółkowski, L., Alonso, E. R., Garrod, R. T., Białkowska-Jaworska, E., León, I., Müller, H. S. P., Menten, K. M., Alonso, J. L. **2022**, A&A, 657, A99
“Millimetre-wave laboratory study of glycineamide and a search for it with ALMA towards Sagittarius B2(N)”
24. Müller, H. S. P., **Belloche, A.**, Lewen, F., Drouin, B. J., Sung, K., Garrod, R. T., Menten, K. M. **2021**, Journal of Molecular Spectroscopy, 378, 111449
“Toward a global model of the interactions in low-lying states of methyl cyanide: Rotational and rovibrational spectroscopy of the $v_4 = 1$ state and tentative interstellar detection of the $v_4 = v_8 = 1$ state in Sgr B2(N)”
25. Podio, L., Tabone, B., Codella, C., Gueth, F., Maury, A., Cabrit, S., Lefloch, B., Maret, S., **Belloche, A.**, André, P., Anderl, S., Gaudel, M., Testi, L. **2021**, A&A, 648, A45
“The CALYPSO IRAM-PdBI survey of jets from Class 0 protostars. Exploring whether jets are ubiquitous in young stars”
26. Alonso, E. R., Kolesníková, L., **Belloche, A.**, Mata, S., Garrod, R. T., Jabri, A., León, I., Guillemin, J.-C., Müller, H. S. P., Menten, K. M., Alonso, J. L. **2021**, A&A, 647, A55
“Rotational spectroscopic study and astronomical search for propiolamide in Sgr B2(N)”

27. Gong, Y., **Belloche, A.**, Du, F. J., Menten, K. M., Henkel, C., Li, G. X., Wyrowski, F., Mao, R. Q. **2021**, *A&A*, 646, A170
“Physical and chemical structure of the Serpens filament: Fast formation and gravity-driven accretion”
28. Kamiński, T., Menten, K. M., Tyłenda, R., Wong, K. T., **Belloche, A.**, Mehner, A., Schmidt, M. R., Patel, N. A. **2020**, *A&A*, 644, A59
“Molecular remnant of Nova 1670 (CK Vulpeculae). I. Properties and enigmatic origin of the gas”
29. Anderl, S., Maret, S., Cabrit, S., Maury, A. J., **Belloche, A.**, André, Ph., Bacmann, A., Codella, C., Podio, L., Gueth, F. **2020**, *A&A*, 643, A123
“Probing episodic accretion with chemistry: CALYPSO observations of the very-low-luminosity Class 0 protostar IRAM 04191+1522. Results from the CALYPSO IRAM-PdBI survey”
30. Humire, P. K., Thiel, V., Henkel, C., **Belloche, A.**, Loison, J.-C., Pillai, T., Riquelme, D., Wakelam, V., Langer, N., Hernández-Gómez, A., Mauersberger, R., Menten, K. M. **2020**, *A&A*, 642, A222
“Sulphur and carbon isotopes towards Galactic centre clouds”
31. Motiyenko, R. A., **Belloche, A.**, Garrod, R. T., Margulès, L., Müller, H. S. P., Menten, K. M., Guillemin, J.-C. **2020**, *A&A*, 642, A29
“Millimeter- and submillimeter-wave spectroscopy of thioformamide and interstellar search toward Sgr B2(N)”
32. Melosso, M., **Belloche, A.**, Martin-Drumel, M.-A., Pirali, O., Tamassia, F., Bizzocchi, L., Garrod, R. T., Müller, H. S. P., Menten, K. M., Dore, L., Puzzarini, C. **2020**, *A&A*, 641, A160
“Far-infrared laboratory spectroscopy of aminoacetonitrile and first interstellar detection of its vibrationally excited transitions”
33. Sanz-Novo, M., **Belloche, A.**, Alonso, J. L., Kolesniková, L., Garrod, R. T., Mata, S., Müller, H. S. P., Menten, K. M., Gong, Y. **2020**, *A&A*, 639, A135
“Interstellar glycolamide: A comprehensive rotational study and an astronomical search in Sgr B2(N)”
34. Ilyushin, V. V., Zakharenko, O., Lewen, F., Schlemmer, S., Alekseev, E. A., Pogrebnyak, M., Lees, R. M., Xu, L.-H., **Belloche, A.**, Menten, K. M., Garrod, R. T., Müller, H. S. P. **2020**, *Canadian Journal of Physics*, 98, 530
“Rotational spectrum of isotopic methyl mercaptan, $^{13}\text{CH}_3\text{SH}$, in the laboratory and towards Sagittarius B2(N2)”
35. Margulès, L., Ilyushin, V. V., McGuire, B. A., **Belloche, A.**, Motiyenko, R. A., Remijan, A., Alekseev, E. A., Dorovskaya, O., Guillemin, J.-C. **2020**, *Journal of Molecular Spectroscopy*, 371, 111304
“Submillimeter-wave spectroscopy of and interstellar search for thioacetaldehyde”

36. Gaudel, M., Maury, A. J., **Belloche, A.**, Maret, S., André Ph., Hennebelle, P., Galametz, M., Testi, L., Cabrit, S., Palmeirim, P., Ladjelate, B., Codella, C., Podio, L. **2020**, A&A, 637, A92
“Angular momentum profiles of Class 0 protostellar envelopes“
37. Willis, E. R., Garrod, R. T., **Belloche, A.**, Müller, H. S. P., Barger, C. J., Bonfand, M., Menten, K. M. **2020**, A&A, 636, A29
“Exploring molecular complexity with ALMA (EMoCA): complex isocyanides in Sgr B2(N)”
38. **Belloche, A.**, Maury, A. J., Maret, S., Anderl, S., Bacmann, A., André, Ph., Bontemps, S., Cabrit, S., Codella, C., Gaudel, M., Gueth, F., Lefèvre, C., Lefloch, B., Podio, L., Testi, L. **2020**, A&A, 635, A198
“Questioning the spatial origin of complex organic molecules in young protostars with the CALYPSO survey”
39. Maret, S., Maury, A. J., **Belloche, A.**, Gaudel, M., André, Ph., Cabrit, S., Codella, C., Lefèvre, C., Podio, L., Anderl, S., Gueth, F., Hennebelle, P. **2020**, A&A, 635, A15
“Searching for kinematic evidence of Keplerian disks around Class 0 protostars with CALYPSO”
40. Busch, L. A., **Belloche, A.**, Cabrit, S., Hennebelle, P., Commerçon, B. **2020**, A&A, 633, A126
“The dynamically young outflow of the Class 0 protostar Cha-MMS1”
41. Csengeri, T., **Belloche, A.**, Bontemps, S., Wyrowski, F., Menten, K. M., Bouscasse, L. **2019**, A&A, 632, A57
“Search for high-mass protostars with ALMA revealed up to kilo-parsec scales (SPARKS). II. Complex organic molecules and heavy water in shocks around a young high-mass protostar”
42. Galametz, M., Maury, A. J., Valdivia, V., Testi, L., **Belloche, A.**, André, Ph. **2019**, A&A, 632, A5
“Low dust emissivities and radial variations in the envelopes of Class 0 protostars: possible signature of early grain growth”
43. Hsieh, T.-H., Murillo, N. M., **Belloche, A.**, Hirano, N., Walsh, C., van Dishoeck, E. F., Jørgensen, J. K., Lai, S.-P. **2019**, ApJ, 884, 149
“Chronology of Episodic Accretion in Protostars—An ALMA Survey of the CO and H₂O Snowlines”
44. Ordu, M. H., Zingsheim, O., **Belloche, A.**, Lewen, F., Garrod, R. T., Menten, K. M., Schlemmer, S., Müller, H. S. P. **2019**, A&A, 629, A72
“Laboratory rotational spectroscopy of isotopic acetone, CH₃¹³C(O)CH₃ and ¹³CH₃C(O)CH₃, and astronomical search in Sagittarius B₂(N₂)”
45. Giuliano, B. M., Bizzocchi, L., Pietropoli Charnet, A., Arenas, B. E., Steber, A. L., Schnell, M., Caselli, P., Harris, B. J., Pate, B. H., Guillemin, J.-C., **Belloche, A.** **2019**, A&A, 628, A53
“Rotational spectroscopy of imidazole: improved rest frequencies for astrophysical searches”

46. Bonfand, M., **Belloche, A.**, Garrod, R. T., Menten, K. M., Willis, E., Stéphan, G., Müller, H. S. P. **2019**, *A&A*, 628, A27
“The complex chemistry of hot cores in Sgr B2(N): influence of cosmic-ray ionization and thermal history”
47. **Belloche, A.**, Garrod, R. T., Müller, H. S. P., Menten, K. M., Medvedev, I., Thomas, J., Kisiel, Z. **2019**, *A&A*, 628, A10
“Re-exploring Molecular Complexity with ALMA (ReMoCA): interstellar detection of urea”
48. Zakharenko, O., Lewen, F., Ilyushin, V. V., Müller, H. S. P., Schlemmer, S., Alekseev, E. A., Krapivin, I., Xu, L.-H., Lees, R. M., Garrod, R., **Belloche, A.**, Menten, K. M. **2019**, *A&A*, 627, A41
“Rotational spectroscopy of isotopic species of methyl mercaptan at millimeter and submillimeter wavelengths: CH₃S-3₄-H”
49. Martin-Drumel, M.-A., Lee, K. L. K., **Belloche, A.**, Zingsheim, O., Thorwirth, S., Müller, H. S. P., Lewen, F., Garrod, R. T., Menten, K. M., McCarthy, M. C., Schlemmer, S. **2019**, *A&A*, 623, A167
“Submillimeter spectroscopy and astronomical searches of vinyl mercaptan, C₂H₃SH”
50. Thiel, V., **Belloche, A.**, Menten, K. M., Giannetti, A., Wiesemeyer, H., Winkel, B., Gratier, P., Müller, H. S. P., Colombo, D., Garrod, R. T. **2019**, *A&A*, 623, A68
“Small-scale physical and chemical structure of diffuse and translucent molecular clouds along the line of sight to Sgr B2”
51. Vol’vach, L. N., Vol’vach, A. E., Larionov, M. G., MacLeod, G. C., van den Heever, S. P., Wolak, P., Olech, M., Ipatov, A. V., Ivanov, D. V., Mikhailov, A. G., Mel’nikov, A. E., Menten, K., **Belloche, A.**, Weiss, A., Mazumdar, P., Schuller, F. **2019**, *Astronomy Reports*, 63, 49
“A Giant Water Maser Flare in the Galactic Source IRAS 18316-0602”
52. Hsieh, T.-H., Hirano, N., **Belloche, A.**, Lee, C.-F., Aso, Y., Lai, S.-P. **2019**, *ApJ*, 871, 100
“ALMA Observations of the Protostellar Disk around the VeLLO IRAS 16253-2429”
53. Maury, A. J., André, P., Testi, L., Maret, S., **Belloche, A.**, et al. **2019**, *A&A*, 621, A76
“Characterizing young protostellar disks with the CALYPSO IRAM-PdBI survey: large Class 0 disks are rare”
54. Csengeri, T., Bontemps, S., Wyrowski, F., **Belloche A.**, et al. **2018**, *A&A*, 617, A89
“Search for high-mass protostars with ALMA revealed up to kilo-parsec scales (SPARKS). I. Indication for a centrifugal barrier in the environment of a single high-mass envelope”
55. Richard, C., **Belloche, A.**, Margulès, L., Motiyenko, R. A., Menten, K. M., Garrod, R. T., Müller, H. S. P. **2018**, *Journal of Molecular Spectroscopy*, 345, 51
“Rotational spectrum of 3-aminopropionitrile and searches for it in Sagittarius B2(N)”

56. Hsieh, T.-H., Murillo, N. M., **Belloche, A.**, Hirano, N., Walsh, C., van Dishoeck, E. F., Lai, S.-P. **2018**, ApJ, 854, 15
“Probing Episodic Accretion in Very Low Luminosity Objects”
57. Bizzocchi, L., Tamassia, F., Laas, J., Giuliano, B., Degli Esposti, C., Dore, L., Melosso, M., Canè, E., Pietropoli Charmet, A., Müller, H. S. P., Spahn, H., **Belloche, A.**, Caselli, P., Menten, K. M., Garrod, R. T. **2017**, ApJS, 233, 11
“Rotational and High-resolution Infrared Spectrum of HC₃N: Global Ro-vibration Analysis and Improved Line Catalogue for Astrophysical Observations”
58. Kamiński, T., Menten, K. M., Tyłenda, R., Karakas, A., **Belloche, A.**, Patel, N. A. **2017**, A&A, 607, A78
“Organic molecules, ions, and rare isotopologues in the remnant of the stellar-merger candidate, CK Vulpeculae (Nova 1670)”
59. Thiel, V., **Belloche, A.**, Menten, K. M., Garrod, R. T., Müller, H. S. P. **2017**, A&A, 605, L6
“Complex organic molecules in diffuse clouds along the line of sight to Sgr B2”
60. Bonfand, M., **Belloche, A.**, Menten, K. M., Garrod, R. T., Müller, H. S. P. **2017**, A&A, 604, A60
“Exploring molecular complexity with ALMA (EMoCA): Detection of three new hot cores in Sagittarius B2(N)”
61. Lefèvre, C., Cabrit, S., Maury, A. J., Gueth, F., Tabone, B., Podio, L., **Belloche, A.**, Codella, C., Maret, S., Anderl, S., André, Ph., Hennebelle, P. **2017**, A&A, 604, L1
“CALYPSO view of SVS 13A with PdBI: Multiple jet sources”
62. **Belloche, A.**, Meshcheryakov, A. A., Garrod, R. T., Ilyushin, V. V., Alekseev, E. A., Motiyenko, R. A., Margulès, L., Müller, H. S. P., Menten, K. M. **2017**, A&A, 601, A49
“Rotational spectroscopy, tentative interstellar detection, and chemical modeling of N-methylformamide”
63. Garrod, R. T., **Belloche, A.**, Müller, H. S. P., Menten, K. M. **2017**, A&A, 601, A48
“Exploring molecular complexity with ALMA (EMoCA): Simulations of branched carbon-chain chemistry in Sgr B2(N)”
64. Hsieh, T.-H., Lai, S.-P., **Belloche, A.** **2017**, AJ, 153, 173
“Widening of Protostellar Outflows: An Infrared Outflow Survey in Low-luminosity Objects”
65. De Simone, M., Codella, C., Testi, L., **Belloche, A.**, Maury, A. J., Anderl, S., André, Ph., Maret, S., Podio, L. **2017**, A&A, 599, A121
“Glycolaldehyde in Perseus young solar analogs”
66. Müller, H. S. P., Walters, A., Wehres, N., **Belloche, A.**, et al. **2016**, A&A, 595, A87
“Laboratory spectroscopic study and astronomical detection of vibrationally excited n-propyl cyanide”

67. Podio, L., Codella, C., Gueth, F., Cabrit, S., Maury, A., Tabone, B., Lefèvre, C., Anderl, S., André, Ph., **Belloche, A.**, Bontemps, S., Hennebelle, P., Lefloch, B., Maret, S., Testi, L. **2016**, *A&A*, 593, L4
“First image of the L1157 molecular jet by the CALYPSO IRAM-PdBI survey”
68. Kama, M., Bruderer, S., van Dishoeck, E. F., Hogerheijde, M., Folsom, C. P., Miotello, A., Fedele, D., **Belloche, A.**, Güsten, R., Wyrowski, F. **2016**, *A&A*, 592, A83
“Volatile-carbon locking and release in protoplanetary disks. A study of TW Hya and HD 100546”
69. Hsieh, T.-H., Lai, S.-P., **Belloche, A.**, & Wyrowski, F. **2016**, *ApJ*, 826, 68
“IRAS 16253-2429: The First Proto-brown Dwarf Binary Candidate Identified through the Dynamics of Jets”
70. Anderl, S., Maret, S., Cabrit, S., **Belloche, A.**, Maury, A. J., André, Ph., Codella, C., Bacmann, A., Bontemps, S., Podio, L., Gueth, F., Bergin, E. **2016**, *A&A*, 591, A3
“Probing the CO and methanol snow lines in young protostars. Results from the CALYPSO IRAM-PdBI survey”
71. Margulès, L., **Belloche, A.**, Müller, H. S. P., Motiyenko, R. A., Guillemin, J.-C., Garrod, R. T., Menten, K. M. **2016**, *A&A*, 590, A93
“Spectroscopic study and astronomical detection of doubly ^{13}C -substituted ethyl cyanide”
72. Varela, K., van Eerten, H., Greiner, J., et al. **2016**, *A&A*, 589, A37
“Microphysics and dynamics of the gamma-ray burst 121024A”
73. Punanova, A., Caselli, P., Pon, A., **Belloche, A.**, André, Ph. **2016**, *A&A*, 587, A118
“Deuterium fractionation in the Ophiuchus molecular cloud”
74. Müller, H. S. P., **Belloche, A.**, Xu, L.-H., Lees, R. M., Garrod, R. T., Walters, A., van Wijngaarden, J., Lewen, F., Schlemmer, S., Menten, K. M. **2016**, *A&A*, 587, A92
“Exploring molecular complexity with ALMA (EMoCA): Alkanethiols and alkanols in Sagittarius B2(N2)”
75. **Belloche, A.**, Müller, H. S. P., Garrod, R. T., Menten, K. M. **2016**, *A&A*, 587, A91
“Exploring molecular complexity with ALMA (EMoCA): Deuterated complex organic molecules in Sagittarius B2(N2)”
76. van Kempen, T. A., Hogerheijde, M. R., van Dishoeck, E. F., Kristensen, L. E., **Belloche, A.**, et al. **2016**, *A&A*, 587, A17
“Outflow forces in intermediate mass star formation”
77. Santangelo, G., Codella, C., Cabrit, S., Maury, A. J., Gueth, F., Maret, S., Lefloch, B., **Belloche, A.**, et al. **2015**, *A&A*, 584, A126
“Jet multiplicity in the proto-binary system NGC1333-IRAS4A. The detailed CALYPSO IRAM-PdBI view”
78. Corby, J. F., Jones, P. A., Cunningham, M. R., Menten, K. M., **Belloche, A.**, et al. **2015**, *MNRAS*, 452, 3969
“An ATCA survey of Sagittarius B2 at 7 mm: chemical complexity meets broad-band interferometry”

79. Hsieh, T.-H., Lai, S.-P., **Belloche, A.**, Wyrowski, F., & Hung, C.-L. **2015**, ApJ, 802, 126
“Properties of the Molecular Cores of Low Luminosity Objects”
80. Yıldız, U. A., Kristensen, L. E., van Dishoeck, E. F., Hogerheijde, M. R., Karska, A., **Belloche, A.**, et al. **2015**, A&A, 576, A109
“APEX-CHAMP+ high-J CO observations of low-mass young stellar objects. IV. Mechanical and radiative feedback”
81. Tsitali, A. E., **Belloche, A.**, Garrod, R. T., Parise, B., & Menten, K. M. **2015**, A&A, 575, A27
“Star formation in Chamaeleon I and III: a molecular line study of the starless core population”
82. **Belloche, A.**, Garrod, R. T., Müller, H. S. P., & Menten, K. M. **2014**, Science, 345, 1584
“Detection of a branched alkyl molecule in the interstellar medium: iso-propyl cyanide”
83. Codella, C., Maury, A. J., Gueth, F., Maret, S., **Belloche, A.**, Cabrit, S., & André, Ph. **2014**, A&A, 563, L3
“First results from the CALYPSO IRAM-PdBI survey. III. Monopolar jets driven by a proto-binary system in NGC 1333-IRAS2A”
84. Maury, A. J., **Belloche, A.**, André, Ph., Maret, S., Gueth, F., Codella, C., Cabrit, S., Testi, L., & Bontemps, S. **2014**, A&A, 563, L2
“First results from the CALYPSO IRAM-PdBI survey. II. Resolving the hot corino in the Class 0 protostar NGC 1333-IRAS2A”
85. Maret, S., **Belloche, A.**, Maury, A. J., Gueth, F., André, Ph., Cabrit, S., Codella, C., & Bontemps, S. **2014**, A&A, 563, L1
“First results from the CALYPSO IRAM-PdBI survey. I. Kinematics of the inner envelope of NGC 1333-IRAS2A”
86. **Belloche, A.**, Müller, H. S. P., Menten, K. M., Schilke, P., & Comito, C. **2013**, A&A, 559, A47
“Complex organic molecules in the interstellar medium: IRAM 30 m line survey of Sagittarius B2(N) and (M)”
87. Li, G.-X., Wyrowski, F., Menten, K., & **Belloche, A.** **2013**, A&A, 559, A34
“A 500 pc filamentary gas wisp in the disk of the Milky Way”
88. Tsitali, A. E., **Belloche, A.**, Commerçon, B., & Menten, K. M. **2013**, A&A, 557, A98
“The dynamical state of the first hydrostatic core candidate Chamaeleon-MMS1”
89. Casassus, S., Hales, A., de Gregorio, I., Dent, B., **Belloche, A.**, Güsten, R., Ménard, F., Hughes, A. M., Wilner, D., & Salinas, V. **2013**, A&A, 553, A64
“CO(6–5) and [C i](2–1) pointed observations of five protoplanetary disks: Warm gas in HD 142527”

90. Bisschop, S. E., Schilke, P., Wyrowski, F., **Belloche, A.**, Brinch, C., Endres, C. P., Güsten, R., Hafok, H., Heyminck, S., Jørgensen, J. K., Müller, H. S. P., Menten, K. M., Rolffs, R., & Schlemmer, S. **2013**, *A&A*, 552, A122
“Dimethyl ether in its ground state, $v = 0$, and lowest two torsionally excited states, $v_{11} = 1$ and $v_{15} = 1$, in the high-mass star-forming region G327.3-0.6”
91. Pety, J., Gratier, P., Guzmán, V., Roueff, E., Gerin, M., Goicoechea, J. R., Bardeau, S., Sievers, A., Le Petit, F., Le Bourlot, J., **Belloche, A.**, & Talbi, D. **2012**, *A&A*, 548, A68
“The IRAM-30 m line survey of the Horsehead PDR. II. First detection of the l -C₃H+ hydrocarbon cation”
92. Parise, B., Du, F., Liu, F.-C., **Belloche, A.**, Wiesemeyer, H., Güsten, R., Menten, K. M., Hübers, H.-W., Klein, B. **2012**, *A&A*, 542, L5
“Detection of OD towards the low-mass protostar IRAS 16293-2422”
93. Yıldız, U. A., Kristensen, L. E., van Dishoeck, E. F., **Belloche, A.**, van Kempen, T. A., Hogerheijde, M. R., Güsten, R., & van der Marel, N. **2012**, *A&A*, 542, A86
“APEX-CHAMP⁺ high- J CO observations of low-mass young stellar objects. III. NGC 1333 IRAS 4A/4B envelope, outflow, and ultraviolet heating”
94. Ordu, M. H., Müller, H. S. P., Walters, A., Nuñez, M., Lewen, F., **Belloche, A.**, Menten, K. M., Schlemmer, S. **2012**, *A&A*, 541, A121
“The quest for complex molecules in space: laboratory spectroscopy of n -butyl cyanide, n -C₄H₉CN, in the millimeter wave region and its astronomical search in Sagittarius B2(N)”
95. Jones, P. A., Burton, M. G., Cunningham, M. R., Requena-Torres, M. A., Menten, K. M., Schilke, P., **Belloche, A.**, Leurini, S., Martín-Pintado, J., Ott, J., & Walsh, A. J. **2012**, *MNRAS*, 419, 2961
“Spectral imaging of the Central Molecular Zone in multiple 3-mm molecular lines”
96. Bourke, T. L., Myers, P. C., Caselli, P., Di Francesco, J., **Belloche, A.**, Plume, R., & Wilner, D. J. **2012**, *ApJ*, 745, 117
“Initial Conditions for Star Formation in Clusters: Physical and Kinematical Structure of the Starless Core Oph A-N6”
97. Møllendal, H., Margulès, L., **Belloche, A.**, Motiyenko, R. A., Konovalov, A., Menten, K. M., Guillemin, J. C. **2012**, *A&A*, 538, A51
“Rotational spectrum of a chiral amino acid precursor, 2-aminopropionitrile, and searches for it in Sagittarius B2(N)”
98. **Belloche, A.**, Parise, B., Schuller, F., André, Ph., Bontemps, S., & Menten, K. M. **2011**, *A&A*, 535, A2
“Will the starless cores in Chamaeleon I and III turn prestellar?”
99. Rolffs, R., Schilke, P., Wyrowski, F., Dullemond, C., Menten, K. M., Thorwirth, S., & **Belloche, A.** **2011**, *A&A*, 529, A76
“Hot HCN around young massive stars at 0.1” resolution”

100. **Belloche, A.**, Schuller, F., Parise, B., André, Ph., Hatchell, J., Jørgensen, J. K., Bontemps, S., Weiß, A., Menten, K. M., & Muters, D. **2011**, A&A, 527, A145
“The end of star formation in Chamaeleon I? A LABOCA census of starless and protostellar cores”
101. Parise, B., **Belloche, A.**, Du, F., Güsten, R., & Menten, K. M. **2011**, A&A, 526, A31
“Extended emission of D_2H^+ in a prestellar core”
102. Menten, K. M., Wyrowski, F., **Belloche, A.**, Güsten, R., Dedes, L., & Müller, H. S. P. **2011**, A&A, 525, A77
“Submillimeter absorption from SH^+ , a new widespread interstellar radical, $^{13}CH^+$ and HCl ”
103. Braakman, R., **Belloche, A.**, Blake, G. A., & Menten, K. M. **2010**, ApJ, 724, 994
“Search for Interstellar Methoxyacetonitrile and Cyanoethanol: Insights Into Coupling of Cyano- to Methanol and Ammonia Chemistry”
104. Comito, C., Schilke, P., Rolffs, R., Lis, D. C., **Belloche, A.**, et al., **2010**, A&A, 521, L38
“Herschel observations of deuterated water towards Sgr B2(M)”
105. Qin, S. -L., Schilke, P., Comito, C., Möller, T., Rolffs, R., Müller, H. S. P., **Belloche, A.**, et al., **2010**, A&A, 521, L14
“Herschel observations of EXtra-Ordinary Sources (HEXOS): Detecting spiral arm clouds by CH absorption lines”
106. Panić, O., van Dishoeck, E. F., Hogerheijde, M. R., **Belloche, A.**, Güsten, R., Boland, W., & Baryshev, A. **2010**, A&A, 519, A110
“Observations of warm molecular gas and kinematics in the disc around HD 100546”
107. Friesen, R. K., Di Francesco, J., Myers, P. C., **Belloche, A.**, Shirley, Y. L., Bourke, T. L., & André, P. **2010**, ApJ, 718, 666
“The initial conditions of clustered star formation. III. The deuterium fractionation of the Ophiuchus B2 core”
108. Wyrowski, F., Menten, K. M., Güsten, R., & **Belloche, A.** **2010**, A&A, 518, A26
“First interstellar detection of OH^+ ”
109. Brünken, S., **Belloche, A.**, Martín, S., Verheyen, L., Menten, K. M. **2010**, A&A, 516, A109
“Interstellar HOCN in the Galactic center region”
110. Maury, A., André, P., Hennebelle, P., Motte, F., Stamatellos, D., Bate, M., **Belloche, A.**, Duchêne, G., Whitworth, A. **2010**, A&A, 512, A40
“Toward understanding the formation of multiple systems. A pilot IRAM-PdBI survey of Class 0 objects”
111. Leurini, S., Codella, C., Zapata, L. A., **Belloche, A.**, Stanke, T., Wyrowski, F., Schilke, P., Menten, K. M., Güsten, R. **2009**, A&A, 507, 1443
“Extremely high velocity gas from the massive young stellar objects in IRAS 17233-3606”

112. **Belloche, A.**, Garrod, R. T., Müller, H. S. P., Menten, K. M., Comito, C., & Schilke, P. **2009**, *A&A*, 499, 215
“Increased complexity in interstellar chemistry: detection and chemical modeling of ethyl formate and n-propyl cyanide in Sagittarius B2(N)”
113. Forbrich, J., Wiesemeyer, H., Thum, C., **Belloche, A.**, & Menten, K. M. **2008**, *A&A*, 492, 757
“Observations of the Goldreich-Kylafis effect in star-forming regions with XPOL at the IRAM 30m telescope”
114. Pandian, J. D., Leurini, S., Menten, K. M., **Belloche, A.**, & Goldsmith, P. F. **2008**, *A&A*, 489, 1175
“Detection of 6.7 GHz methanol absorption towards hot corinos”
115. Müller, H. S. P., **Belloche, A.**, Menten, K. M., Comito, C., & Schilke, P. **2008**, *Journal of Molecular Spectroscopy*, 251, 319
“Rotational spectroscopy of isotopic vinyl cyanide, H₂CCHCN, in the laboratory and in space”
116. Jones, P. A., Burton, M. G., Cunningham, M. R., Menten, K. M., Schilke, P., **Belloche, A.**, Leurini, S., Ott, J., & Walsh, A. J. **2008**, *MNRAS*, 386, 117
“Spectral imaging of the Sagittarius B2 region in multiple 3-mm molecular lines with the Mopra telescope”
117. **Belloche, A.**, Menten, K. M., Comito, C., Müller, H. S. P., Schilke, P., Ott, J., Thorwirth, S., & Hieret, C. **2008**, *A&A*, 482, 179, and *erratum* 2008, *A&A*, 492, 769
“Detection of amino acetonitrile in Sgr B2(N)”
118. Menten, K. M., Lundgren, A., **Belloche, A.**, Thorwirth, S., & Reid, M. J. **2008**, *A&A*, 477, 185
“A multi-transition submillimeter water maser study of evolved stars - detection of a new line near 475 GHz”
119. André, P., **Belloche, A.**, Motte, F., & Peretto, N. **2007**, *A&A*, 472, 519
“The initial conditions of star formation in the Ophiuchus main cloud: Kinematics of the protocluster condensations”
120. Zhang, J. S., Henkel, C., Mauersberger, R., Chin, Y.-N., Menten, K. M., Tieftrunk, A. R., & **Belloche, A.** **2007**, *A&A*, 465, 887
“The interaction of young massive stars with their environment - A millimeter and submillimeter line study of NGC 6334 FIR II”
121. van der Tak, F. F. S., **Belloche, A.**, Schilke, P., Güsten, R., Philipp, S., Comito, C., Bergman, P., & Nyman, L.-Å. **2006**, *A&A*, 454, L99
“APEX mapping of H₃O⁺ in the Sgr B2 region”
122. Parise, B., **Belloche, A.**, Leurini, S., Schilke, P., Wyrowski, F., Güsten, R. **2006**, *A&A*, 454, L79
“CO and CH₃OH observations of the BHR71 outflows with APEX”

123. Hogerheijde, M. R., Caselli, P., Emprechtinger, M., van der Tak, F. F. S., Alves, J., **Belloche, A.**, Güsten, R., Lundgren, A. A., Nyman, L.-Å., Volgenau, N., Wiedner, M. C. **2006**, *A&A*, 454, L59
“Probable detection of H_2D^+ in the starless core Barnard 68”
124. **Belloche, A.**, Parise, B., van der Tak, F. F. S., Schilke, P., Leurini, S., Güsten, R., & Nyman, L.-Å. **2006**, *A&A*, 454, L51
“The evolutionary state of the southern dense core Chamaeleon-MMS1”
125. Muders, D., Hafok, H., Wyrowski, F., Polehampton, E., **Belloche, A.**, König, C., Schaaf, R., Schuller, F., Hatchell, J., & van der Tak, F. F. S. **2006**, *A&A*, 454, L25
“APECS - the Atacama pathfinder experiment control system”
126. **Belloche, A.**, Hennebelle, P., & André, P. **2006**, *A&A*, 453, 145
“Strongly induced collapse in the Class 0 protostar NGC 1333 IRAS 4A”
127. Peretto, N., André, P., & **Belloche, A.** **2006**, *A&A*, 445, 979
“Probing the formation of intermediate- to high-mass stars in protoclusters. A detailed millimeter study of the NGC 2264 clumps”
128. Lesaffre, P., **Belloche, A.**, Chièze, J.-P., & André, P. **2005**, *A&A*, 443, 961
“The dynamical influence of cooling in the envelope of prestellar and protostellar cores”
129. **Belloche, A.**, & André, P. **2004**, *A&A*, 419, L35
“Disappearance of N_2H^+ from the gas phase in the class 0 protostar IRAM 04191”
130. **Belloche, A.**, André, P., Despois, D., & Blinder, S. **2002**, *A&A*, 393, 927
“Molecular line study of the very young protostar IRAM 04191 in Taurus: infall, rotation, and outflow”