

## Production scientifique

### Publications

#### Articles dans des revues à comité de lecture

- [58] Z. Buchanan, K. L. K. Lee, O. Chitarra, M. C. McCarthy, O. Pirali et **M.-A. Martin-Drumel**, "A rotational and vibrational investigation of phenylpropionitrile ( $C_6H_5C_3N$ )", *The Journal of Molecular Spectroscopy* **377**, 111425 (2021).
- [57] O. Chitarra, **M.-A. Martin-Drumel**, Z. Buchanan et O. Pirali, "Rotational and vibrational spectroscopy of 1-cyanoadamantane and 1-isocyanoadamantane", *The Journal of Molecular Spectroscopy*, accepted (2021) 10.1016/j.jms.2021.111468.
- [56] C. P. Endres, **M.-A. Martin-Drumel**, O. Zingsheim, L. Bonah, O. Pirali, T. Zhang, Á. Sánchez-Monge, T. Möller, N. Wehres, P. Schilke, M. C. McCarthy, S. Schlemmer, P. Caselli et S. Thorwirth, "SOLEIL and ALMA views on prototypical organic nitriles :  $C_2H_5CN$ ", *The Journal of Molecular Spectroscopy* **375**, 111392 (2021).
- [55] C. P. Endres, G. C. Mellau, M. E. Harding, **M.-A. Martin-Drumel**, H. Lichau et S. Thorwirth, "High-resolution infrared study of vinyl acetylene : The  $\nu_{13}$  ( $214\text{ cm}^{-1}$ ) and  $\nu_{18}$  ( $304\text{ cm}^{-1}$ ) fundamentals", *The Journal of Molecular Spectroscopy*, accepted (2021).
- [54] L. Bizzocchi, M. Melosso, B. M. Giuliano, L. Dore, F. Tamassia, **M.-A. Martin-Drumel**, O. Pirali, L. Margulès et P. Caselli, "Submillimeter and Far-infrared Spectroscopy of Monodeuterated Amidogen Radical (NHD) : Improved Rest Frequencies for Astrophysical Observations", *The Astrophysical Journal Supplement Series* **247**, 59 (2020).
- [53] O. Chitarra, **M.-A. Martin-Drumel**, B. Gans, J.-C. Loison, S. Spezzano, V. Lattanzi, H. S. P. Müller et O. Pirali, "Re-investigation of the rotation-tunneling spectrum of the  $CH_2OH$  radical – Accurate frequency determination of transitions of astrophysical interest below 330 GHz", *Astronomy & Astrophysics* **644**, A123 (2020).
- [52] M. Goubet, **M.-A. Martin-Drumel**, F. Réal, V. Vallet et O. Pirali, "Conformational Landscape of Oxygen-Containing Naphthalene Derivatives", *The Journal of Physical Chemistry A* **124**, 4484 (2020).
- [51] M. Melosso, L. Bizzocchi, B. M. Giuliano, L. Dore, F. Tamassia, **M.-A. Martin-Drumel**, O. Pirali, O. Sipilä, E. Redaelli et P. Caselli, "First detection of NHD and  $ND_2$  in the interstellar medium – Amidogen deuteration in IRAS 16293–2422", *Astronomy & Astrophysics* **641**, A153 (2020).
- [50] **M.-A. Martin-Drumel**, J. P. Porterfield, M. Goubet, P. Asselin, R. Georges, P. Soulard, M. Nava, P. B. Changala, B. Billinghamurst, O. Pirali, M. C. McCarthy et J. H. Baraban, "Synchrotron-Based High Resolution Far-Infrared Spectroscopy of *trans*-Butadiene", *The Journal of Physical Chemistry A* **124**, 2427 (2020).
- [49] M. Melosso, A. Belloche, **M.-A. Martin-Drumel**, O. Pirali, F. Tamassia, L. Bizzocchi, R. Garrod, H. Müller, K. Menten, L. Dore et C. Puzzarini, "Far-infrared laboratory spectroscopy of aminoacetonitrile and first interstellar detection of its vibrationally excited transitions", *Astronomy & Astrophysics* **641**, A160 (2020).

- [48] M. Melosso, L. Bizzocchi, A. Adamczyk, E. Canè, P. Caselli, L. Colzi, L. Dore, B. M. Giuliano, J.-C. Guillemin, **M.-A. Martin-Drumel**, O. Pirali, A. Pietropolli Charmet, D. Prudeniano, V. M. Rivilla et F. Tamassia, "Extensive ro-vibrational analysis of deuterated-cyanoacetylene (DC<sub>3</sub>N) from millimeter-wavelengths to the infrared domain", *Journal of Quantitative Spectroscopy and Radiative Transfer* **254**, 107221 (2020).
- [47] P. Asselin, J. Bruckhuisen, A. Roucou, M. Goubet, **M.-A. Martin-Drumel**, A. Jabri, Y. Belkhodja, P. Soulard, R. Georges et A. Cuisset, "Jet-cooled rovibrational spectroscopy of methoxyphenols using two complementary FTIR and QCL based spectrometers", *The Journal of Chemical Physics* **151**, 194302 (2019).
- [46] S. L. Johansen, **M.-A. Martin-Drumel** et K. N. Crabtree, "Rotational spectrum of the  $\beta$ -cyanovinyl radical : A possible astrophysical N-heterocycle precursor", *The Journal of Physical Chemistry A* **123**, 5171 (2019).
- [45] J.-F. Lampin, O. Pirali, Z. S. Buchanan, S. Eliet, **M.-A. Martin-Drumel**, J. Turut, P. Roy, F. Hindle et G. Mouret, "Broadband terahertz heterodyne spectrometer exploiting synchrotron radiation at megahertz resolution", *Optics Letters* **44**, 4985 (2019).
- [44] K. L. K. Lee, **M.-A. Martin-Drumel**, V. Lattanzi, B. A. McGuire, P. Caselli et M. C. McCarthy, "Gas phase detection and rotational spectroscopy of ethynethiol, HCCSH", *Molecular Physics* **117**, 1381 (2019).
- [43] K. L. K. Lee, S. Thorwirth, **M.-A. Martin-Drumel** et M. C. McCarthy, "Generation and structural characterization of Ge carbides GeC<sub>n</sub> ( $n = 4, 5, 6$ ) by laser ablation, broadband rotational spectroscopy, and quantum chemistry", *Physical Chemistry Chemical Physics* **21**, 18911 (2019).
- [42] **M.-A. Martin-Drumel**, K. L. K. Lee, A. Belloche, O. Zingsheim, S. Thorwirth, H. S. P. Müller, F. Lewen, R. T. Garrod, K. M. Menten, M. C. McCarthy et S. Schlemmer, "Submillimeter spectroscopy and astronomical searches of vinyl mercaptan, C<sub>2</sub>H<sub>3</sub>SH", *Astronomy & Astrophysics* **623**, A167 (2019).
- [41] **M.-A. Martin-Drumel**, J. Baraban, P. B. Changala, J. Stanton et M. C. McCarthy, "The hunt for elusive molecules : Insights from joint theoretical and experimental investigations", *Chemistry – A European Journal* **25**, Invited mini-review, 7243 (2019).
- [40] B. A. McGuire, C. N. Shingledecker, E. R. Willis, K. L. K. Lee, **M.-A. Martin-Drumel**, G. A. Blake, C. L. Brogan, A. M. Burkhardt, P. Caselli, K.-J. Chuang et al., "Searches for Interstellar HCCSH and H<sub>2</sub>CCS", *The Astrophysical Journal* **883**, 201 (2019).
- [39] J. H. Baraban, **M.-A. Martin-Drumel**, P. B. Changala, S. Eibenberger, M. Nava, D. Patterson, J. F. Stanton, G. B. Ellison et M. C. McCarthy, "The Molecular Structure of *gauche*-1,3-Butadiene : Experimental Establishment of Non-planarity", *Angewandte Chemie International Edition* **57**, 1821 (2018).
- [38] M. Joost, M. Nava, W. J. Transue, **M.-A. Martin-Drumel**, M. C. McCarthy, D. Patterson et C. C. Cummins, "Sulfur monoxide thermal release from an anthracene-based precursor, spectroscopic identification, and transfer reactivity", *Proceedings of the National Academy of Sciences* **115**, 5866 (2018).
- [37] B. A. McGuire, **M.-A. Martin-Drumel**, K. L. K. Lee, J. F. Stanton, C. A. Gottlieb et M. C. McCarthy, "Vibrational satellites of C<sub>2</sub>S, C<sub>3</sub>S and C<sub>4</sub>S : microwave spectral taxonomy as a stepping stone to the millimeter-wave band", *Physical Chemistry Chemical Physics* **20**, 13870 (2018).
- [36] M. C. McCarthy, L. Zou et **M.-A. Martin-Drumel**, "To kink or not : A search for long-chain cumulenes using microwave spectral taxonomy", *Journal of Chemical Physics* **146**, 154301 (2017).
- [35] B. A. McGuire, **M.-A. Martin-Drumel** et M. C. McCarthy, "The electron donor-acceptor nature of the ethanol-CO<sub>2</sub> dimer", *Journal of Physical Chemistry A* **121**, 6283 (2017).
- [34] A. Roucou, G. Dhont, A. Cuisset, **M.-A. Martin-Drumel**, S. Thorwirth, D. Fontanari et W. L. Meerts, "High resolution study of the  $\nu_2$  and  $\nu_5$  rovibrational fundamental bands of thionyl chloride : Interplay of an evolutionary algorithm and a line-by-line analysis", *Journal of Chemical Physics* **147**, 054303 (2017).

- [33] O. Zingsheim, **M.-A. Martin-Drumel**, S. Thorwirth, S. Schlemmer, C. A. Gottlieb, J. Gauss et M. C. McCarthy, "Germanium dicarbide : Evidence for a T-shaped ground state structure", *Journal of Physical Chemistry Letters* **8**, 3776 (2017).
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- [31] L. Margulès, **M.-A. Martin-Drumel**, O. Pirali, S. Bailleux, G. Wlodarczak, P. Roy, E. Roueff et M. Gerin, "Terahertz spectroscopy of the  $^{15}\text{NH}_2$  amidogen radical", *Astronomy & Astrophysics* **591**, A110 (2016).
- [30] **M.-A. Martin-Drumel**, M. C. McCarthy, D. Patterson, B. A. McGuire et K. N. Crabtree, "Automated microwave double resonance spectroscopy : A tool to identify and characterize chemical compounds", *Journal of Chemical Physics* **144**, 124202 (2016).
- [29] **M.-A. Martin-Drumel**, A. Roucou, G. G. Brown, S. Thorwirth, O. Pirali, G. Mouret, F. Hindle, M. C. McCarthy et A. Cuisset, "High resolution spectroscopy of six  $\text{SOCl}_2$  isotopologues from the microwave to the far-infrared", *Journal of Chemical Physics* **144**, 084305 (2016).
- [28] M. C. McCarthy, O. Jr. Martinez, B. A. McGuire, K. N. Crabtree, **M.-A. Martin-Drumel** et J. F. Stanton, "Isotopic studies of trans- and cis-HOCO using rotational spectroscopy : Formation, chemical bonding, and molecular structures", *Journal of Chemical Physics* **144**, 124304 (2016).
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- [25] S. Thorwirth, **M.-A. Martin-Drumel**, C. P. Endres, T. Salomon, O. Zingsheim, J. van Wijngaarden, O. Pirali, S. Gruet, F. Lewen, S. Schlemmer et M. C. McCarthy, "An ASAP treatment of vibrationally excited  $\text{S}_2\text{O}$  : The  $\nu_3$  mode and the  $\nu_3 + \nu_2 - \nu_2$  hot band", *Journal of Molecular Spectroscopy* **319**, 47 (2016).
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- [23] J. Cernicharo, M. C. McCarthy, C. A. Gottlieb, M. Agúndez, L. V. Prieto, J. H. Baraban, P. B. Changala, M. Guélin, C. Kahane, **M.-A. Martin-Drumel**, N. A. Patel, N. J. Reilly, J. F. Stanton, G. Quintana-Lacaci, S. Thorwirth et K. H. Young, "Discovery of SiCSi in IRC+10216 : A missing link between gas and dust carriers of Si-C bonds", *Astrophysical Journal Letters* **806**, L3 (2015).
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- [21] **M.-A. Martin-Drumel**, C. P. Endres, O. Zingsheim, T. Salomon, J. van Wijngaarden, O. Pirali, S. Gruet, F. Lewen, S. Schlemmer, M. C. McCarthy et S. Thorwirth, "The SOLEIL view on sulfur rich oxides : The  $\text{S}_2\text{O}$  bending mode  $\nu_2$  at  $380\text{ cm}^{-1}$  and its analysis using an Automated Spectral Assignment Procedure (ASAP)", *Journal of Molecular Spectroscopy* **315**, 72 (2015).
- [20] **M.-A. Martin-Drumel**, F. Hindle, G. Mouret, A. Cuisset et J. Cernicharo, "A complete spectroscopic characterization of SO and its isotopologues up to the terahertz domain", *Astrophysical Journal* **799**, 115 (2015).
- [19] **M.-A. Martin-Drumel**, G. Mouret, O. Pirali et A. Cuisset, "High-resolution synchrotron far infrared spectroscopy of thionyl chloride : Analysis of the  $\nu_3$  and  $\nu_6$  fundamental bands", *Journal of Molecular Spectroscopy* **315**, 30 (2015).

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- [16] M. C. McCarthy, K. N. Crabtree, **M.-A. Martin-Drumel**, O. Jr. Martinez, B. A. McGuire et C. A. Gottlieb, "A laboratory study of  $C_3H^+$  and the  $C_3H$  radical in three new vibrationally excited  $^2\Sigma$  states using a pin-hole nozzle discharge source", *Astrophysical Journal Supplement Series* **217**, 10 (2015).
- [15] O. Pirali, Z. Kisiel, M. Goubet, S. Gruet, **M.-A. Martin-Drumel**, A. Cuisset, F. Hindle et G. Mouret, "Rotation-vibration interactions in the spectra of polycyclic aromatic hydrocarbons : Quinoline as a test-case species", *Journal of Chemical Physics* **142**, 104310 (2015).
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- [5] **M.-A. Martin-Drumel**, S. Eliet, O. Pirali, M. Guinet, F. Hindle, G. Mouret et A. Cuisset, "New investigation on THz spectra of OH and SH radicals ( $X^2\Pi_i$ )", *Chemical Physics Letters* **550**, 8 (2012).
- [4] S. Yu, J. C. Pearson, B. J. Drouin, **M.-A. Martin-Drumel**, O. Pirali, M. Vervloet, L. H. Coudert, H. S. P. Müller et S. Brünken, "Measurement and analysis of new terahertz and far-infrared spectra of high temperature water", *Journal of Molecular Spectroscopy* **279**, 16 (2012).
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- Actes de conférence*
- [4] J. B. Brubach, B. Langerome, M. Verseils, F. Capitani, T. Souske, J.-F. Lampin, S. E. Eliet-Barois, O. Pirali, **M.-A. Martin-Drumel**, F. Hindle, G. Mouret, C. Evain, C. Szwaj, E. Roussel, S. Bielawski, T. Timusk et P. Roy, "Enlarging the Frontiers of Research in the IR/mm Range Using Synchrotron Radiation", in *44th International Conference on Infrared, Millimeter, and Terahertz Waves (IRMMW-THz)* (2019).
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  - [2] **M.-A. Martin-Drumel**, O. Pirali, S. Eliet et A. Cuisset, "High resolution far infrared laboratory spectroscopy of transient species : Application to the SO radical ( $X^3\Sigma$ )", in *1st European Conference on Laboratory Astrophysics (ECLA)*, *EAS Publications Series*, t. 58 (2013).
  - [1] S. Eliet, M. Guinet, A. Cuisset, F. Hindle, O. Pirali, **M.-A. Martin-Drumel** et G. Mouret, "Detection and analysis of OH and SH radicals by using THz photomixing synthesizer", in *36th International Conference on Infrared, Millimeter, and Terahertz Waves (IRMMW-THz)* (2011).

## Communications orales

### *Communications invitées*

- [12] **M.-A. Martin-Drumel**, *Journées de Spectroscopie Moléculaire* (2021).
- [11] **M.-A. Martin-Drumel**, *HITRAN meeting* (2021).
- [10] **M.-A. Martin-Drumel**, O. Pirali, O. Chitarra, K. L. K. Lee et M. C. McCarthy, "Laboratory rotational spectroscopy of reactive interstellar isomers", *COSPAR Scientific Assembly, Sydney, Australie* (2021).
- [9] **M.-A. Martin-Drumel**, O. Pirali, S. Eliet, Z. Buchanan, J. Turut, P. Roy, F. Hindle, J.-F. Lampin et G. Mouret, "Exploiting the THz synchrotron radiation at its highest resolution and in a broadband fashion using heterodyne techniques", *SOLEIL Users' Meeting* (2020).
- [8] **M.-A. Martin-Drumel**, "Exploiting chirped-pulse spectroscopy for characterizing the molecular composition of complex gas mixtures", *2nd QUADMARTS Network Workshop, Nancy, France* (2019).
- [7] **M.-A. Martin-Drumel**, "Spectroscopy of interstellar ions", *Workshop on physico-chemistry processes of astrophysical interest : The chemistry of ions, Saint Florent, France* (2019).
- [6] **M.-A. Martin-Drumel**, "High resolution spectroscopy of reactive molecules", *10èmes Journées Science et Technique du Synchrotron SOLEIL, France* (2018).
- [5] **M.-A. Martin-Drumel**, K. N. Crabtree, M. Nava, D. Patterson et M. C. McCarthy, "Microwave spectroscopy : A tool to study mixtures and investigate chemical reactions", *25th International Colloquium on High Resolution Molecular Spectroscopy (HRMS), Helsinki, Finlande* (2017).
- [4] **M.-A. Martin-Drumel**, K. N. Crabtree, O. Pirali et M. C. McCarthy, "Caractérisation des espèces transitoires par taxonomie spectrale", *Réunion plénière du GdR SPECMO, Lille, France* (2017).
- [3] **M.-A. Martin-Drumel**, M. C. McCarthy, D. Patterson, M. Nava, M. Joost, B. A. McGuire et K. N. Crabtree, "Automated microwave double resonance spectroscopy (AMDOR) : A tool to identify and characterize chemical compounds", *72nd International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, USA. Communication plénière récompense pour le prix Miller* (2017).



- [2] **M.-A. Martin-Drumel**, "From assisted to automated assignment of complex spectra", *Atelier Astrophysique de Laboratoire, Bonn, Allemagne* (2017).
- [1] **M.-A. Martin-Drumel**, J. Oliveira, M. C. McCarthy, S. Thorwirth, C. P. Endres et O. Pirali, "Programs and analysis tools for Fourier-transform far-infrared spectroscopy", *SOLEIL Users' Meeting, atelier satellite sur la spectroscopie infrarouge, Synchrotron SOLEIL, France* (2017).

#### Communications orales en conférence

- [22] **M.-A. Martin-Drumel**, M. C. McCarthy, J.-C. Guillemin, O. Pirali et K. Lee, "Investigating isomers of astrophysical molecules by rotational spectroscopy : The case of [C<sub>2</sub>H<sub>2</sub>O] compounds", *74th International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, USA* (2019).
- [21] **M.-A. Martin-Drumel**, M. C. McCarthy, J. F. Stanton, B. E. Billingham, O. Pirali, R. Georges, P. Soulard, P. Asselin, M. Goubet, M. Nava, B. Changala, J. H. Baraban et J. P. Porterfield, "High resolution far-infrared spectroscopy of *trans*- and *gauche*-butadiene", *74th International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, USA* (2019).
- [20] **M.-A. Martin-Drumel**, J. H. Baraban, P. B. Changala, M. J. Nava, J. P. Porterfield, B. Ellison, O. Pirali, J. F. Stanton et M. C. McCarthy, "The structure of *gauche*-butadiene : Insights from the centimeter, millimeter, and far-infrared high resolution spectra", *73rd International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, USA* (2018).
- [19] **M.-A. Martin-Drumel**, B. Changala, H. Gupta, J. H. Westerfield, O. Pirali, S. Thorwirth, J. H. Baraban, J. F. Stanton et M. C. McCarthy, "Laboratory investigation of astronomical reactive species : the vibrational satellites of *c*-C<sub>3</sub>H<sub>2</sub> re-visited", *73rd International Symposium on Molecular Spectroscopy, Champaign-Urbana, Illinois, USA* (2018).
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- [17] **M.-A. Martin-Drumel**, O. Pirali et M. C. McCarthy, "Investigating transient species in the millimeter domain using spectral taxonomy", *Conférence biennale du programme national "Physique et Chimie du Milieu Interstellaire" (PCMI), Marseille* (2018).
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## Affiches

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