

Jean VANDER AUWERA – List of publications

January 4, 2024

International peer-reviewed journals

145. W. Tchana Betnga, F. Hindle, L. Manceron, **J. Vander Auwera**, A. Cuisset, G. Mouret, R. Bocquet, A. Perrin, P. Roy, F. Kwabia Tchana. A new instrumentation for simultaneous THz and mid-IR spectroscopy in corrosive gaseous mixtures. *Review of Scientific Instruments* (2024), accepted for publication.
144. C. Richard, V. Boudon, L. Manceron, **J. Vander Auwera**, S. Vinatier, B. Bézard, M. Houelle. Self and N₂ collisional broadening of far-infrared methane lines at low-temperature with application to Titan. *Icarus* 404 (2023) 115692.
143. P. Cacciani, P. Čermák, O. Votava, **J. Vander Auwera**, A. Campargue. The ammonia absorption spectrum revisited between 5650 and 6350 cm⁻¹. *Molecular Physics* e2256893 (2023).
142. W. Tchana Betnga, F. Kwabia Tchana, A. Perrin, L. Manceron, **J. Vander Auwera**, F. Hindle, A. Coutens. New line intensities for the far infrared bands of the trans- and cis-conformer of nitrous acid (HONO), new determination of the trans-cis conformer barrier and its impact on the astrophysical detection of nitrous acid in protostellar clouds. *Journal of Quantitative Spectroscopy and Radiative Transfer* 310 (2023) 108727.
141. A. Aerts, S.W. Jolly, P. Kockaert, S.-P. Gorza, **J. Vander Auwera**, N. Vaeck. Modulated super-Gaussian laser pulse to populate a dark rovibrational state of acetylene. *Journal of Chemical Physics* 159 (2023) 084303.
140. P. Cacciani, P. Čermák, **J. Vander Auwera**, A. Campargue. The ammonia absorption spectrum between 4700 and 5650 cm⁻¹. *Journal of Quantitative Spectroscopy and Radiative Transfer* 292 (2022) 108350.
139. H. Tran, **J. Vander Auwera**, T. Bertin, W. Fakhardji, O. Pirali, J.-M. Hartmann. Absorption of methane broadened by carbon dioxide in the 3.3 μm spectral region: From line centers to the far wings. *Icarus* 384 (2022) 115093.
138. A. Aerts, P. Kockaert, S.-P. Gorza, A. Brown, **J. Vander Auwera**, N. Vaeck. Laser control of a dark vibrational state of acetylene in the gas phase – Fourier transform pulse shaping constraints and effects of decoherence. *Journal of Chemical Physics* 156 (2022) 084302.
137. P. Cacciani, P. Čermák, **J. Vander Auwera**, A. Campargue. The ammonia absorption spectrum between 3900 and 4700 cm⁻¹. *Journal of Quantitative Spectroscopy and Radiative Transfer* 277 (2022) 107961.
136. I.E. Gordon, L.S. Rothman, R.J. Hargreaves, R. Hashemi, E.V. Karlovets, F.M. Skinner, E.K. Conway, C. Hill, R.V. Kochanov, Y. Tan, P. Wcisło, A.A. Finenko, K. Nelson, P.F. Bernath, M. Birk, V. Boudon, A. Campargue, K.V. Chance, A. Coustenis, B.J. Drouin, J.-M. Flaud, J.T. Hodges, D. Jacquemart, E.J. Mlawer, A.V. Nikitin, V.I. Perevalov, M. Rotger, J. Tennyson, G.C. Toon, H. Tran, V.G. Tyuterev, E.M. Adkins, A. Baker, A. Barbe, E. Canè, A.G. Császár, A. Dudaryonok, O. Egorov, A.J. Fleisher, H. Fleurbaey, A. Foltynowicz, T. Furtenbacher, J.J. Harrison, J.-M. Hartmann, V.-M. Horneman, X. Huang, T. Karman, J. Karns, S. Kass, I. Kleiner, V. Kofman, F. Kwabia Tchana, N.N.

- Lavrentieva, T.J. Lee, D.A. Long, A.A. Lukashevskaya, O.M. Lyulin, V.Y. Makhnev, W. Matt, S.T. Massie, M. Melosso, S.N. Mikhailenko, D. Mondelain, H.S.P. Müller, O.V. Naumenko, A. Perrin, O.L. Polyansky, E. Raddaoui, P.L. Raston, Z.D. Reed, M. Rey, C. Richard, R. Tóbiás, I. Sadiék, D.W. Schwenke, E. Starikova, K. Sung, F. Tamassia, S.A. Tashkun, **J. Vander Auwera**, I.A. Vasilenko, A.A. Vigasin, G.L. Villanueva, B. Vispoel, G. Wagner, A. Yachmenev, S.N. Yurchenko. The HITRAN 2020 molecular spectroscopic database. *Journal of Quantitative Spectroscopy and Radiative Transfer* 277 (2022) 107949.
135. A. Farji, H. Aroui, **J. Vander Auwera**. Air-induced collisional parameters in the ν_3 band of methane. *Journal of Quantitative Spectroscopy and Radiative Transfer* 275 (2021) 107878.
134. N.F. Zobov, T. Bertin, **J. Vander Auwera**, S. Civiš, A. Knížek, M. Ferus, R.I. Ovsyanikov, V.Y. Maknev, J. Tennyson, O.L. Polyansky. The spectrum of ammonia near 0.793 μm . *Journal of Quantitative Spectroscopy and Radiative Transfer* 273 (2021) 107838.
133. C. Richard, V. Boudon, A. Rizopoulos, **J. Vander Auwera**, F. Kwabia Tchana. Line positions and intensities for the ν_2/ν_4 bands of 5 isotopologues of germane near 11.5 μm . *Journal of Quantitative Spectroscopy and Radiative Transfer* 260 (2021) 107474.
132. T. Delahaye, R. Armante, N.A. Scott, N. Jacquinet-Husson, A. Chédin, L. Crépeau, C. Crevoisier, V. Douet, A. Perrin, A. Barbe, V. Boudon, A. Campargue, L.H. Coudert, V. Ebert, J.-M. Flaud, R.R. Gamache, D. Jacquemart, A. Jolly, F. Kwabia Tchana, A. Kyuberis, G. Li, O.M. Lyulin, L. Manceron, S. Mikhailenko, N. Moazzen-Ahmadi, H.S.P. Müller, O.V. Naumenko, A. Nikitin, V.I. Perevalov, C. Richard, E. Starikova, S.A. Tashkun, V.G. Tyuterev, **J. Vander Auwera**, B. Vispoel, A. Yachmenev, S. Yurchenko. The 2020 edition of the GEISA spectroscopic database. *Journal of Molecular Spectroscopy* 380 (2021) 111510.
131. A. Aerts, **J. Vander Auwera**, N. Vaeck. Lindblad parameters from high resolution spectroscopy to describe collision-induced rovibrational decoherence in the gas phase – Application to acetylene. *Journal of Chemical Physics* 154 (2021) 144308.
130. O. Korablev, A.C. Vandaele, (110 co-authors), **J. Vander Auwera**, L. Vazquez, G. Villanueva, M. Vincendon, J. Whiteway, V. Wilquet, M.J. Wolff, P. Wolkenberg, R. Yelle, R. Young, L. Zasova, M.P. Zorzano. No detection of methane on Mars from early ExoMars Trace Gas Orbiter observations. *Nature* 568 (2019) 517–520.
129. Y. Attafi, S. Galalou, F. Kwabia Tchana, **J. Vander Auwera**, A. Ben Hassen, H. Aroui, A. Perrin, L. Manceron, D. Doizi. Oxygen broadening and shift coefficients in the ν_6 band of methyl iodide ($^{12}\text{CH}_3\text{I}$) at room temperature. *Journal of Quantitative Spectroscopy and Radiative Transfer* 239 (2019) 106679.
128. A.C. Vandaele, (126 co-authors), **J. Vander Auwera**, (63 co-authors). Martian dust storm impact on atmospheric H_2O and D/H observed by ExoMars Trace Gas Orbiter. *Nature* 568 (2019) 521–525.
127. Y. Attafi, A. Ben Hassen, H. Aroui, F. Kwabia Tchana, L. Manceron, D. Doizi, **J. Vander Auwera**, A. Perrin. Self and N_2 collisional broadening of rovibrational lines in the ν_6 band of methyl iodide ($^{12}\text{CH}_3\text{I}$) at room temperature: The J and K dependence. *Journal of Quantitative Spectroscopy and Radiative Transfer* 231 (2019) 1–8.
126. R. Georges, J. Thiévin, A. Benidar, S. Carles, B. Amyay, M. Louvriot, V. Boudon, **J. Vander Auwera**. High enthalpy source dedicated to quantitative infrared emission

- spectroscopy of gas flows at elevated temperatures. *Review of Scientific Instruments* 90 (2019) 093103.
125. G. Liuzzi, (55 co-authors), **J. Vander Auwera**, (39 co-authors). Methane on Mars: New insights into the sensitivity of CH₄ with the NOMAD/ExoMars spectrometer through its first in-flight calibration. *Icarus* 321 (2019) 671–690.
124. F. Kwabia Tchana, Y. Attafi, L. Manceron, D. Doizi, **J. Vander Auwera**, A. Perrin. Line intensities for the ν_6 and $2\nu_3$ bands of methyl iodide (¹²CH₃I). *Journal of Quantitative Spectroscopy and Radiative Transfer* 222–223 (2019) 130–137.
123. **J. Vander Auwera**, M. Godefroid, L. Halonen, F. Merkt, P. De Natale, S. Willitsch. Preface of the special issue dedicated to the 25th Colloquium on High Resolution Molecular Spectroscopy and Michel Herman. *Molecular Physics* 116 (2018) 3447–3462.
122. **J. Vander Auwera**, T. Vanfleteren. Line positions and intensities in the 7400 – 8600 cm⁻¹ region of the ammonia spectrum. *Molecular Physics* 116 (2018) 3621–3630.
121. A.C. Vandaele, J.-J. Lopez-Moreno, M.R. Patel, G. Bellucci, F. Daerden, B. Ristic, S. Robert, I.R. Thomas, V. Wilquet, M. Allen, G. Alonso-Rodrigo, F. Altieri, S. Aoki, D. Bolsée, T. Clancy, E. Cloutis, C. Depiesse, R. Drummond, A. Fedorova, V. Formisano, B. Funke, F. González-Galindo, A. Geminale, J.-C. Gérard, M. Giuranna, L. Hetey, N. Ignatiev, J. Kaminski, O. Karatekin, Y. Kasaba, M. Leese, F. Lefèvre, S.R. Lewis, M. López-Puertas, M. López-Valverde, A. Mahieux, J. Mason, J. McConnell, M. Mumma, L. Neary, E. Neefs, E. Renotte, J. Rodriguez-Gomez, G. Sindoni, M. Smith, A. Stiepen, A. Trokhimovsky, **J. Vander Auwera**, G. Villanueva, S. Viscardy, J. Whiteway, Y. Willame, M. Wolff, the NOMAD Team. NOMAD, an integrated suite of three spectrometers for the ExoMars trace gas mission: Technical description, science objectives and expected performance. *Space Science Reviews* 214 (2018) 80/1–47.
120. B. Amyay, A. Gardez, R. Georges, L. Biennier, **J. Vander Auwera**, C. Richard, V. Boudon. Erratum: “New investigation of the ν_3 C–H stretching region of ¹²CH₄ through the analysis of high temperature infrared emission spectra” [J. Chem. Phys. 148, 134306 (2018)]. *The Journal of Chemical Physics* 148 (2018) 169902.
119. B. Amyay, A. Gardez, R. Georges, L. Biennier, **J. Vander Auwera**, C. Richard, V. Boudon. New investigation of the ν_3 C–H stretching region of ¹²CH₄ through the analysis of high temperature infrared emission spectra. *The Journal of Chemical Physics* 148 (2018) 134306/1–13. Erratum. *The Journal of Chemical Physics* 148 (2018) 169902.
118. V. Boudon, T. Grigoryan, F. Philipot, C. Richard, F. Kwabia Tchana, L. Manceron, A. Rizopoulos, **J. Vander Auwera**, T. Encrenaz. Line positions and intensities for the ν_3 band of 5 isotopologues of germane for planetary applications. *Journal of Quantitative Spectroscopy and Radiative Transfer* 205 (2018) 174–183.
117. A. Lyoussi, D. Doizi, S. Reymond La Ruinaz, I. Haykal, L. Manceron, A. Perrin, V. Boudon, J. Vander Auwera, F. Kwabia Tchana, M. Faye. Analytical measurements of fission products during a severe nuclear accident. EPJ Web of Conferences 170 (2018) 08005.
116. **J. Vander Auwera**, S. Reymond-Laruinaz, V. Boudon, D. Doizi, L. Manceron. Line intensity measurements and analysis in the ν_3 band of ruthenium tetroxide. *Journal of Quantitative Spectroscopy and Radiative Transfer* 204 (2018) 103–111.
115. I.E. Gordon, L.S. Rothman, C. Hill, R.V. Kochanov, Y. Tan, P.F. Bernath, M. Birk,

- V. Boudon, A. Campargue, K.V. Chance, B.J. Drouin, J.-M. Flaud, R.R. Gamache, J.T. Hodges, D. Jacquemart, V.I. Perevalov, A. Perrin, K.P. Shine, M.A.H. Smith, J. Tennyson, G.C. Toon, H. Tran, V.G. Tyuterev, A. Barbe, A.G. Császár, V.M. Devi, T. Furtenbacher, J.J. Harrison, J.-M. Hartmann, A. Jolly, T.J. Johnson, T. Karman, I. Kleiner, A.A. Kyuberis, J. Loos, O.M. Lyulin, S.T. Massie, S.N. Mikhailenko, N. Moazzen-Ahmadi, H.S.P. Müller, O.V. Naumenko, A.V. Nikitin, O.L. Polyansky, M. Rey, M. Rotger, S.W. Sharpe, K. Sung, E. Starikova, S.A. Tashkun, **J. Vander Auwera**, G. Wagner, J. Wilzewski, P. Weislo, S. Yu, E.J. Zak. The HITRAN 2016 Molecular Spectroscopic Database. *Journal of Quantitative Spectroscopy and Radiative Transfer* 203 (2017) 3–69.
114. A. Alkadrou, M.-T. Bourgeois, M. Rotger, V. Boudon, **J. Vander Auwera**. Corrigendum to “Global frequency and intensity analysis of the $\nu_{10}/\nu_7/\nu_4/\nu_{12}$ band system of $^{12}\text{C}_2\text{H}_4$ at 10 μm using the D_{2h} Top Data System.” [J. Quant. Spectrosc. Radiat. Transf. 182 (2016) 158–171]. *Journal of Quantitative Spectroscopy and Radiative Transfer* 190 (2017) 88.
113. J.-M. Hartmann, **J. Vander Auwera**, C. Boulet, M. Birot, M.-A. Dourges, T. Toupance, H. El Hamzaoui, P. Ausset, Y. Carré, L. Kocon, B. Capoen, M. Bouazaoui. Infrared absorption by molecular gases to probe porous materials and comparisons with other techniques. *Microporous & Mesoporous Materials* 237 (2017) 31–37.
112. R. Hashemi, A.S. Dudaryonok, N.N. Lavrentieva, A.C. Vandaele, **J. Vander Auwera**, A.V. Nikitin, V.G. Tyuterev, K. Sung, M.A.H. Smith, V.M. Devi, A. Predoi-Cross. Fourier transform spectroscopy of two trace gases namely methane and carbon monoxide for planetary and atmospheric application. *Journal of Physics: Conference Series* 810 (2017) 012008/1–8.
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