

Full Publication List of Dr. Patrick Hemberger

- [1] B. Noller, **P. Hemberger**, I. Fischer, C. Alcaraz, G. A. Garcia, and H. Soldi-Lose. The photoionisation of two phenylcarbenes and their diazirine precursors investigated using synchrotron radiation. *Phys. Chem. Chem. Phys.*, 11(26):5384–5391, 2009.
- [2] B. K. C. de Miranda, C. Alcaraz, M. Elhanine, B. Noller, **P. Hemberger**, I. Fischer, G. A. Garcia, H. Soldi-Lose, B. Gans, L. A. V. Mendes, S. Boye-Peronne, S. Douin, J. Zabka, and P. Botschwina. Threshold photoelectron spectroscopy of the methyl radical isotopomers, ch_3 , ch_2d , chd_2 and cd_3 : Synergy between vuv synchrotron radiation experiments and explicitly correlated coupled cluster calculations. *J. Phys. Chem. A*, 114(14):4818–4830, 2010.
- [3] K. H. Fischer, **P. Hemberger**, I. Fischer, and A. M. Rijs. Infrared spectra of reactive species generated by flash pyrolysis in a free jet. *Chemphyschem*, 11(15):3228–3230, 2010.
- [4] M. Steinbauer, **P. Hemberger**, I. Fischer, M. Johnson, and A. Bodi. Photoionization of two substituted methyl radicals: Cyanomethyl and bromomethyl. *Chem. Phys. Lett.*, 500(4-6):232–236, 2010.
- [5] **P. Hemberger**, B. Noller, M. Steinbauer, I. Fischer, C. Alcaraz, B. K. C. de Miranda, G. A. Garcia, and H. Soldi-Lose. Threshold photoelectron spectroscopy of cyclopropenylidene, chlorocyclopropenylidene, and their deuterated isotopomers. *J. Phys. Chem. A*, 114(42):11269–11276, 2010.
- [6] **P. Hemberger**, B. Noller, M. Steinbauer, K. Fischer, and I. Fischer. The b^1b_1 state of cyclopropenylidene, $\text{c}-\text{c}_3\text{h}_2$. *J. Phys. Chem. Lett.*, 1(1):228–231, 2010.
- [7] **P. Hemberger**, M. Steinbauer, M. Schneider, I. Fischer, M. Johnson, A. Bodi, and T. Gerber. Photoionization of three isomers of the c_9h_7 radical. *J. Phys. Chem. A*, 114(14):4698–4703, 2010.
- [8] G. da Silva, A. J. Trevitt, M. Steinbauer, and **P. Hemberger**. Pyrolysis of fulvenallene (c_7h_6) and fulvenallenyl (c_7h_5): Theoretical kinetics and experimental product detection. *Chem. Phys. Lett.*, 517(4-6):144–148, 2011.
- [9] J. Kohler, **P. Hemberger**, I. Fischer, G. Piani, and L. Poisson. Ultrafast dynamics of isolated fluoroenone. *J. Phys. Chem. A*, 115(50):14249–14253, 2011.
- [10] M. Steinbauer, **P. Hemberger**, I. Fischer, and A. Bodi. Photoionization of c_7h_6 and c_7h_5 : Observation of the fulvenallenyl radical. *Chemphyschem*, 12(10):1795–1797, 2011.
- [11] **P. Hemberger**, M. Lang, B. Noller, I. Fischer, C. Alcaraz, B. K. C. de Miranda, G. A. Garcia, and H. Soldi-Lose. Photoionization of propargyl and bromopropargyl radicals: A threshold photoelectron spectroscopic study. *J. Phys. Chem. A*, 115(11):2225–2230, 2011.
- [12] A. Bodi, **P. Hemberger**, T. Gerber, and B. Sztaray. A new double imaging velocity focusing coincidence experiment: i(2)pepico. *Rev. Sci. Instrum.*, 83(8):083105, 2012.
- [13] **P. Hemberger***, A. Bodi, C. Schon, M. Steinbauer, K. H. Fischer, C. Kaiser, and I. Fischer. A pass too far: dissociation of internal energy selected paracyclophane cations, theory and experiment. *Phys. Chem. Chem. Phys.*, 14(34):11920–11929, 2012.
- [14] **P. Hemberger**, J. Kohler, I. Fischer, G. Piani, L. Poisson, and J. M. Mestdagh. Femtosecond dynamics of cyclopropenylidene, $\text{c}-\text{c}_3\text{h}_2$. *Phys. Chem. Chem. Phys.*, 14(18):6173–6178, 2012.
- [15] A. Bodi, **P. Hemberger**, and T. Gerber. A robust link between the thermochemistry of urea and isocyanic acid by dissociative photoionization. *J. Chem. Thermodyn.*, 58:292–299, 2013.
- [16] A. Bodi, **P. Hemberger**, D. L. Osborn, and B. Sztaray. Mass-resolved isomer-selective chemical analysis with imaging photoelectron photoion coincidence spectroscopy. *J. Phys. Chem. Lett.*, 4(17):2948–2952, 2013.
- [17] K. H. Fischer, **P. Hemberger***, A. Bodi, and I. Fischer. Photoionisation of the tropyl radical. *Beilstein J. Org. Chem.*, 9:681–688, 2013.
- [18] T. Gerber, Y. Z. Liu, G. Knopp, **P. Hemberger**, A. Bodi, P. Radi, and Y. Sych. Charged particle velocity map image reconstruction with one-dimensional projections of spherical functions. *Rev. Sci. Instrum.*, 84(3):033101, 2013.

- [19] J. Harvey, **P. Hemberger**^{*}, A. Bodi, and R. P. Tuckett. Vibrational and electronic excitations in fluorinated ethene cations from the ground up. *J. Chem. Phys.*, 138(12):124301, 2013.
- [20] F. Holzmeier, M. Lang, K. Hader, **P. Hemberger**, and I. Fischer. H_2cn^+ and h_2cnh^+ : New insight into the structure and dynamics from mass-selected threshold photoelectron spectra. *J. Chem. Phys.*, 138(21):214310, 2013.
- [21] M. Lang, F. Holzmeier, I. Fischer, and **P. Hemberger**^{*}. Threshold photoionization of fluorenyl, benzhydryl, diphenylmethylene, and their dimers. *J. Phys. Chem. A*, 117(25):5260–5268, 2013.
- [22] Y. Z. Liu, G. Knopp, **P. Hemberger**, Y. Sych, P. Radi, A. Bodi, and T. Gerber. Ultrafast imaging of electronic relaxation in o-xylene: a new competing intersystem crossing channel. *Phys. Chem. Chem. Phys.*, 15(41):18101–18107, 2013.
- [23] P. M. Mayer, D. Staedter, V. Blanchet, **P. Hemberger**, and A. Bodi. Comparing femtosecond multi-photon dissociative ionization of tetrathiafulvene with imaging photoelectron photoion coincidence spectroscopy. *J. Phys. Chem. A*, 117(13):2753–2759, 2013.
- [24] **P. Hemberger**^{*}, A. Bodi, T. Gerber, M. Wurtemberger, and U. Radius. Unimolecular reaction mechanism of an imidazolin-2-ylidene: An ipepico study on the complex dissociation of an arduengo-type carbene. *Chem. Eur. J.*, 19(22):7090–7099, 2013.
- [25] **P. Hemberger**^{*}, A. J. Trevitt, E. Ross, and G. da Silva. Direct observation of para-xylylene as the decomposition product of the meta-xylyl radical using vuv synchrotron radiation. *J. Phys. Chem. Lett.*, 4(15):2546–2550, 2013.
- [26] A. Bodi and **P. Hemberger**. Imaging breakdown diagrams for bromobutyne isomers with photoelectron-photoion coincidence. *Phys. Chem. Chem. Phys.*, 16(2):505–515, 2014.
- [27] V. B. F. Custodis, **P. Hemberger**, Z. Q. Ma, and J. A. van Bokhoven. Mechanism of fast pyrolysis of lignin: Studying model compounds. *J. Phys. Chem. B*, 118(29):8524–8531, 2014.
- [28] F. Holzmeier, M. Lang, **P. Hemberger**, A. Bodi, M. Schafer, R. D. Dewhurst, H. Braunschweig, and I. Fischer. Photoionization and pyrolysis of a 1,4-azaborinine: Retro-hydroboration in the cation and identification of novel organoboron ring systems. *Chem. Eur. J.*, 20(31):9683–9692, 2014.
- [29] F. Holzmeier, M. Lang, **P. Hemberger**^{*}, and I. Fischer. Improved ionization energies for the two isomers of phenylpropargyl radical. *Chemphyschem*, 15(16):3489–3492, 2014.
- [30] M. Lang, F. Holzmeier, I. Fischer, and **P. Hemberger**^{*}. Decomposition of diazomeldrum's acid: A threshold photoelectron spectroscopy study. *J. Phys. Chem. A*, 118(47):11235–11243, 2014.
- [31] N. M. Neisius, M. Lutz, D. Rentsch, **P. Hemberger**, and S. Gaan. Synthesis of dopo-based phosphonamides and their thermal properties. *Ind. Eng. Chem. Res.*, 53(8):2889–2896, 2014.
- [32] P. Osswald, **P. Hemberger**, T. Bierkandt, E. Akyildiz, M. Kohler, A. Bodi, T. Gerber, and T. Kasper. In situ flame chemistry tracing by imaging photoelectron photoion coincidence spectroscopy. *Rev. Sci. Instrum.*, 85(2):025101, 2014.
- [33] T. Schramm, G. Gantefor, A. Bodi, **P. Hemberger**, T. Gerber, and B. von Issendorff. Photoelectron spectroscopy of size-selected cluster ions using synchrotron radiation. *Appl. Phys. A: Mater. Sci. Process.*, 115(3):771–779, 2014.
- [34] **P. Hemberger**^{*}, A. J. Trevitt, T. Gerber, E. Ross, and G. da Silva. Isomer-specific product detection of gas-phase xylyl radical rearrangement and decomposition using vuv synchrotron photoionization. *J. Phys. Chem. A*, 118(20):3593–3604, 2014.
- [35] B. West, A. Sit, A. Bodi, **P. Hemberger**, and P. M. Mayer. Dissociative photoionization and threshold photoelectron spectra of polycyclic aromatic hydrocarbon fragments: An imaging photoelectron photoion coincidence (ipepico) study of four substituted benzene radical cations. *J. Phys. Chem. A*, 118(47):11226–11234, 2014.
- [36] T. Bierkandt, T. Kasper, E. Akyildiz, A. Lucassen, P. Osswald, M. Kohler, and **P. Hemberger**. Flame structure of a low-pressure laminar premixed and lightly sooting acetylene flame and the effect of ethanol addition. *Proc. Combust. Inst.*, 35:803–811, 2015.
- [37] J. Bouwman, A. Bodi, J. Oomens, and **P. Hemberger**. On the formation of cyclopentadiene in the $\text{c}_5\text{h}_5\cdot + \text{c}_2\text{h}_2$ reaction. *Phys. Chem. Chem. Phys.*, 17(32):20508–20514, 2015.
- [38] J. Bouwman, B. Sztaray, J. Oomens, **P. Hemberger**, and A. Bodi. Dissociative photoionization of quinoline and isoquinoline. *J. Phys. Chem. A*, 119(7):1127–1136, 2015.

- [39] G. T. Buckingham, T. K. Ormond, J. P. Porterfield, **P. Hemberger**, O. Kostko, M. Ahmed, D. J. Robichaud, M. R. Nimlos, J. W. Daily, and G. B. Ellison. The thermal decomposition of the benzyl radical in a heated micro-reactor. i. experimental findings. *J. Chem. Phys.*, 142(4):044307, 2015.
- [40] D. Felsmann, K. Moshammer, J. Kruger, A. Lackner, A. Brockhinke, T. Kasper, T. Bierkandt, E. Akyildiz, N. Hansen, A. Lucassen, P. Osswald, M. Kohler, G. A. Garcia, L. Nahon, **P. Hemberger**, A. Bodi, T. Gerber, and K. Kohse-Hoinghaus. Electron ionization, photoionization and photo-electron/photoion coincidence spectroscopy in mass-spectrometric investigations of a low-pressure ethylene/oxygen flame. *Proc. Combust. Inst.*, 35:779–786, 2015.
- [41] F. Holzmeier, M. Lang, I. Fischer, X. Tang, B. C. de Miranda, C. Romanzin, C. Alcaraz, and **P. Hemberger**. Threshold photoelectron spectroscopy of unstable n-containing compounds: Resolution of δk subbands in hnco^+ and vibrational resolution in nco^+ . *J. Chem. Phys.*, 142(18):184306, 2015.
- [42] F. Holzmeier, M. Lang, I. Fischer, and **P. Hemberger***. The threshold photoelectron spectrum of cyanovinylacetylene leads to an upward revision of the ionization energy. *Chem. Phys. Lett.*, 638:201–204, 2015.
- [43] F. Holzmeier, M. Lang, I. Fischer, **P. Hemberger**, G. A. Garcia, X. Tang, and J. C. Loison. Assignment of high-lying bending mode levels in the threshold photoelectron spectrum of nh_2 : a comparison between pyrolysis and fluorine-atom abstraction radical sources. *Phys. Chem. Chem. Phys.*, 17(29):19507–19514, 2015.
- [44] M. Lang, F. Holzmeier, **P. Hemberger***, and I. Fischer. Threshold photoelectron spectra of combustion relevant c_4h_5 and c_4h_7 isomers. *J. Phys. Chem. A*, 119(17):3995–4000, 2015.
- [45] S. Y. Liang, **P. Hemberger***, N. M. Neisius, A. Bodi, H. Gruetzmacher, J. Levalois-Gruetzmacher, and S. Gaan. Elucidating the thermal decomposition of dimethyl methylphosphonate by vacuum ultraviolet (vuv) photoionization: Pathways to the po radical, a key species in flame-retardant mechanisms. *Chem. Eur. J.*, 21(3):1073–1080, 2015.
- [46] Z. Q. Ma, V. B. F. Custodis, **P. Hemberger**, C. Bahrle, F. Vogel, G. Jeschke, and J. A. van Bokhoven. Chemicals from lignin by catalytic fast pyrolysis, from product control to reaction mechanism. *Chimia*, 69(10):597–602, 2015.
- [47] T. K. Ormond, **P. Hemberger**, T. P. Troy, M. Ahmed, J. F. Stanton, and G. B. Ellison. The ionisation energy of cyclopentadienone: a photoelectron-photoion coincidence study. *Mol. Phys.*, 113(15-16):2350–2358, 2015.
- [48] J. D. Savee, J. Zador, **P. Hemberger**, B. Sztaray, A. Bodi, and D. L. Osborn. Threshold photoelectron spectrum of the benzyl radical. *Mol. Phys.*, 113(15-16):2217–2227, 2015.
- [49] **P. Hemberger***, A. Bodi, J. H. J. Berthel, and U. Radius. Intramolecular c-n bond activation and ring-expansion reactions of n-heterocyclic carbenes. *Chem. Eur. J.*, 21(4):1434–1438, 2015.
- [50] **P. Hemberger***, G. da Silva, A. J. Trevitt, T. Gerber, and A. Bodi. Are the three hydroxyphenyl radical isomers created equal? - the role of the phenoxy radical. *Phys. Chem. Chem. Phys.*, 17(44):30076–30083, 2015.
- [51] R. Tuckett, J. Harvey, **P. Hemberger**, and A. Bodi. The vacuum-ultraviolet photoelectron spectra of ch_2f_2 and ch_2cl_2 revisited. *J. Mol. Spectrosc.*, 315:172–183, 2015.
- [52] K. Voronova, C. M. M. Easter, K. J. Covert, A. Bodi, **P. Hemberger**, and B. Sztaray. Dissociative photoionization of diethyl ether. *J. Phys. Chem. A*, 119(43):10654–10663, 2015.
- [53] M. F. Heringa, J. G. Slowik, A. S. H. Prevot, U. Baltensperger, **P. Hemberger**, and A. Bodi. Dissociative ionization mechanism and appearance energies in adipic acid revealed by imaging photoelectron photoion coincidence, selective deuteration, and calculations. *J. Phys. Chem. A*, 120(20):3397–3405, 2016.
- [54] F. Holzmeier, I. Fischer, B. Kiendl, A. Krueger, A. Bodi, and **P. Hemberger***. On the absolute photoionization cross section and dissociative photoionization of cyclopropenylidene. *Phys. Chem. Chem. Phys.*, 18(13):9240–9247, 2016.
- [55] F. Holzmeier, I. Wagner, I. Fischer, A. Bodi, and **P. Hemberger***. Pyrolysis of 3-methoxypyridine. detection and characterization of the pyrrolyl radical by threshold photoelectron spectroscopy. *J. Phys. Chem. A*, 120(27):4702–4710, 2016.
- [56] D. L. Osborn, C. C. Hayden, **P. Hemberger**, A. Bodi, K. Voronova, and B. Sztaray. Breaking through

- the false coincidence barrier in electron-ion coincidence experiments. *J. Chem. Phys.*, 145(16):164202, 2016.
- [57] K. Voronova, C. M. M. Easter, K. G. Torma, A. Bodi, **P. Hemberger**, and B. Sztaray. Bifurcated dissociative photoionization mechanism of acetic acid anhydride revealed by imaging photoelectron photoion coincidence spectroscopy. *Phys. Chem. Chem. Phys.*, 18(36):25161–25168, 2016.
- [58] Thomas Bierkandt, **P. Hemberger**, Patrick Osswald, Markus Kohler, and Tina Kasper. Insights in m-xylene decomposition under fuel-rich conditions by imaging photoelectron photoion coincidence spectroscopy. *Proc. Combust. Inst.*, 36(1):1223–1232, 2017.
- [59] A. Bodi, **P. Hemberger**, and R.P. Tuckett. Coincident velocity map image reconstruction illustrated by the single-photon valence photoionisation of cf_3sf_5 . *Phys. Chem. Chem. Phys.*, 19:30173–30180, 2017.
- [60] V. B. F. Custodis, **P. Hemberger**, and J. A. van Bokhoven. How inter- and intramolecular reactions dominate formation of products in lignin pyrolysis. *Chem. Eur. J.*, 23:8658–8668, 2017.
- [61] M. F. Heringa, J. G. Slowik, M. Goldmann, R. Signorell, **P. Hemberger**, and A. Bodi. The distant double bond determines the fate of the carboxylic group in the dissociative photoionization of oleic acid. *Chem. Phys. Chem.*, 18:3595–3604, 2017.
- [62] Fabian Holzmeier, Max-Philipp Herbert, Ingo Fischer, Mathias Steglich, Andras Bodi, and **P. Hemberger***. A photoionization study of 2-propyl and t-butyl radicals. *J. Anal. Appl. Pyrolysis*, 124:454–460, 2017.
- [63] S. Liang, **P. Hemberger***, J. Levalois-Gruetzmacher, H. Gruetzmacher, and S. Gaan. Probing phosphorus nitride (pn) and other elusive species formed upon pyrolysis of dimethyl phosphoramidate. *Chem. Eur. J.*, 23:5595–5601, 2017.
- [64] K. Pachner, M. Steglich, **P. Hemberger**, and I. Fischer. Photodissociation dynamics of the ortho- and para-xylyl radicals. *J. Chem. Phys.*, 147:084303, 2017.
- [65] J. I. M. Pastoors, A. Bodi, **P. Hemberger**, and J. Bouwman. Dissociative ionization and thermal decomposition of cyclopentanone. *Chem. Eur. J.*, 23:13131–13140, 2017.
- [66] E. Reusch, F. Holzmeier, P. Constantinidis, **P. Hemberger***, and Ingo Fischer. Isomer-selective generation and spectroscopic characterization of picolyl radicals. *Angew. Chem. Int. Ed.*, 56:8000–8003, 2017.
- [67] M. Steglich, V. B. F. Custodis, A J. Trevitt, G. daSilva, Andras Bodi, and **P. Hemberger***. Photoelectron spectrum and energetics of the meta-xylylene diradical. *J. Am. Chem. Soc.*, 139:14348, 2017.
- [68] B. Sztaray, K. Voronova, K. Torma, K. Covert, A. Bodi, **P. Hemberger**, T. Gerber, and D. L. Osborn. Crf-pepico: Double velocity map imaging photoelectron photoion coincidence spectroscopy for reaction kinetics studies. *J. Chem. Phys.*, 147:013944, 2017.
- [69] **P. Hemberger***, V. B. F. Custodis, A. Bodi, T. Gerber, and J. A. van Bokhoven. Understanding the mechanism of catalytic fast pyrolysis by unveiling reactive intermediates in heterogeneous catalysis. *Nat. Commun.*, 8:15946, 2017.
- [70] Xiangkun Wu, Xiaoguo Zhou, **P. Hemberger**, and Andras Bodi. Dissociative photoionization of dimethyl carbonate: The more it is cut, the bigger the fragment ion. *J. Phys. Chem. A*, 121:2748–2759, 2017.
- [71] J. Bouwman, Andras Bodi, and **P. Hemberger**. Nitrogen matters: the difference between pah and pah formation. *Phys. Chem. Chem. Phys.*, 20:29910, 2018.
- [72] A. Candian, J. Bouwman, **P. Hemberger**, A. Bodi, and A. G. G. M. Tielens. Dissociative ionisation of adamantane: a combined theoretical and experimental study. *Phys. Chem. Chem. Phys.*, 20:5399–5406, 2018.
- [73] Florian Hirsch, Engelbert Reusch, Philipp Constantinidis, Ingo Fischer, Sjors Bakels, Rijs Anouk M., and **P. Hemberger***. Self-reaction of ortho-benzyne at high temperatures investigated by infrared and photoelectron spectroscopy. *J. Phys. Chem. A*, 122:9563, 2018.
- [74] D. Kaiser, E. Reusch, **P. Hemberger***, A. Bodi, E. Welz, B. Engels, and I. Fischer. The ortho-benzyne cation is not planar. *Phys. Chem. Chem. Phys.*, 20:3988–3966, 2018.
- [75] D. Kruger, P. Osswald, M. Kohler, **P. Hemberger**, T. Bierkandt, Y. Karakaya, and T. Kasper. Hydrogen abstraction ratios: A systematic ipepico spectroscopic investigation in laminar flames. *Combustion and Flam*, 191:343–352, 2018.

- [76] Thomas Keith Ormond, Joshua H. Baraban, Jessica P. Porterfield, Adam M. Scheer, **P. Hemberger**, Tyler Patrick Troy, Musahid Ahmed, Mark R Nimlos, David J Robichaud, John W Daily, and G. Barney Ellison. Thermal decompositions of the lignin model compounds: Salicylaldehyde and catechol. *J. Phys. Chem. A*, 122:5911–5924, 2018.
- [77] V. Paunovic, **P. Hemberger**, A. Bodi, N. Lopez, and J. Perez-Ramirez. Evidence of radical chemistry in catalytic methane oxybromination. *Nat. Catal.*, 1:363–370, 2018.
- [78] D. Schleier, P. Constantinidis, N. Faßheber, I. Fischer, G. Friedrichs, **P. Hemberger***, E. Reusch, B. Sztaray, and K. Voronova. Kinetics of the $\alpha\text{-c}_3\text{h}_5 + \text{o}_2$ reaction, investigated by photoionization using synchrotron radiation. *Phys. Chem. Chem. Phys.*, 20:10721–10731, 2018.
- [79] M. Steglich, A. Bodi, J.P. Maier, and **P. Hemberger***. Probing different spin states in xylyl radicals and ions. *Phys. Chem. Chem. Phys.*, 20:7180–7189, 2018.
- [80] **P. Hemberger*** and A. Bodi. Photoelectron photoion coincidence spectroscopy to unveil reaction mechanisms by isomer-selective detection of elusive molecules: From combustion to catalysis. *Chimia*, 72:227–232, 2018.
- [81] K. Voronova, K.M. Ervin, K.G. Torma, **P. Hemberger**, A. Bodi, T. Gerber, D.L. Osborn, and B. Sztaray. Radical thermometers, thermochemistry, and photoelectron spectra: A photoelectron photoion coincidence spectroscopy study of the methyl peroxy radical. *J. Phys. Chem. Lett.*, 9:534–539, 2018.
- [82] I. Antonov, K. Voronova, M.W. Chen, B. Sztaray, **P. Hemberger**, A. Bodi, D. L. Osborn, and L. Sheps. To boldly look where no one has looked before: Identifying the primary photoproducts of acetylacetone. *J. Phys. Chem. A*, 123:5472–5490, 2019.
- [83] T. Bierkandt, P. Hemberger, P. Oßwald, D. Krüger, M. Köhler, and T. Kasper. Flame structure of laminar premixed anisole flames investigated by photoionization mass spectrometry and photoelectron spectroscopy. *Proc. Combust. Inst.*, 37(2):1579–1587, 2019.
- [84] Thomas Bierkandt, **P. Hemberger**, Patrick Osswald, Dominik Kruger, Markus Kohler, and Tina Kasper. Flame structure of laminar premixed anisole flames investigated by photoionization mass spectrometry and photoelectron spectroscopy. *Proc. Combust. Inst.*, 37:1579–1587, 2019.
- [85] A. Bodi and **P. Hemberger**. Low-energy photoelectron spectrum and dissociative photoionization of the smallest amides: Formamide and acetamide. *J. Phys. Chem. A*, 123:272–283, 2019.
- [86] M. Gerlach, A. Bodi, and **P. Hemberger***. Metamorphic meta isomer: carbon dioxide and ketenes are formed via retro-diels-alder reactions in the decomposition of meta-benzenediol. *Phys. Chem. Chem. Phys.*, 21:19480–19487, 2019.
- [87] Dominik Kruger, Patrick Osswald, Markus Kohler, **P. Hemberger**, Thomas Bierkandt, and Tina Kasper. The fate of the oh radical in molecular beam sampling experiments. *Proc. Combust. Inst.*, 37, 2019.
- [88] K. Majer, R. Signorell, M. F. Heringa, M. Goldmann, P. Hemberger, and A. Bodi. Valence photoionization of thymine: ionization energies, vibrational structure, and fragmentation pathways from the slow to the ultrafast. *Chem. Eur. J.*, 25:14192–14204, 2019.
- [89] V. Paunovic, G. Zichittella, **P. Hemberger**, A. Bodi, and J. Perez-Ramirez. Selective methane functionalization via oxyhalogenation over supported noble metal nanoparticles. *ACS Catalysis*, 9:1710–1725, 2019.
- [90] M.B. Prendergast, B. B. Kirk, J. D. Savee, D. L. Osborn, C.A. Taatjes, **P. Hemberger**, S.J. Blanksby, G. da Silva, and A.J. Trevitt. Product detection study of the gas-phase oxidation of methylphenyl radicals using synchrotron photoionisation mass spectrometry. *Phys. Chem. Chem. Phys.*, 21:17939–17949, 2019.
- [91] E. Reusch, F. Holzmeier, M. Gerlach, I. Fischer, and **P. Hemberger***. Decomposition of picolyl radicals at high temperature: a mass selective threshold photoelectron spectroscopy study. *Chem. Eur. J.*, 25(72):16652–16659, 2019.
- [92] E. Reusch, D. Kaiser, D. Schleier, R. Buschmann, A. Krueger, T. Hermann, B. Engels, I. Fischer, and **P. Hemberger***. Pentadiynylidene and its methyl-substituted derivates: Threshold photoelectron spectroscopy of r1-c5-r2 triplet carbon chains. *J. Phys. Chem. A*, 123:2008–2017, 2019.
- [93] G. Rouillé, M. Steglich, P. Hemberger, C. Jäger, and T Henning. Threshold dissociation of the 1-ethynylpyrene cation at internal energies relevant to hi regions. *Astrophys. J.*, 885(1):21 (10 pp.), 2019.

- [94] D. Schleier, E. Reusch, L. Lummel, P. Hemberger, and I. Fischer. Threshold photoelectron spectroscopy of io and hoi. *ChemPhysChem*, 20(19):2413–2416, 2019.
- [95] M. Steglich, G. Knopp, and **P. Hemberger***. How the methyl group position influences the ultrafast deactivation in aromatic radicals. *Phys. Chem. Chem. Phys.*, 21:581–588, 2019.
- [96] C. H. Strobel, G. Gantefoer, A. Bodi, and **P. Hemberger**. A magnetic bottle time-of-flight electron spectrometer suitable for continuous ionization sources. *Rev. Sci. Instrum.*, 90:063105, 2019.
- [97] **P. Hemberger**, T. Gerber, and A. Bodi. Conference report ptpc2019: Photon tools for physical chemistry 2019. *Chimia*, 73:210–211, 2019.
- [98] X. Wu, X. Zhou, P. Hemberger, and A. Bodi. The ionization energy of the vinyl radical: a mexican standoff with a happy ending. *Phys. Chem. Chem. Phys.*, 21(40):22238–22247, 2019.
- [99] G. Zichittella, M. Scharfe, B. Puertolas, V. Paunovic, **P. Hemberger**, A. Bodi, L. Szentmiklosi, Nuria Lopez, and J. Perez-Ramirez. Halogen-dependent surface confinement governs selective alkane functionalization to olefins. *Angew. Chem. Int. Ed.*, 58:5877–5881, 2019.
- [100] Siquan Feng, Patrick Hemberger, Andras Bodi, Xiangen Song, Tongpo Yu, Zheng Jiang, Yang Liu, and Yunjie Ding. Preparation and regeneration of supported single-ir-site catalysts by nanoparticle dispersion via co and nascent i radicals. *J. Catal.*, 382:347–357, 2020.
- [101] Siquan Feng, Xiangsong Lin, Xiangen Song, Yang Liu, Zheng Jiang, Patrick Hemberger, Andras Bodi, and Yunjie Ding. The role of h_2 on the stability of the single-metal-site ir_1/ac catalyst for heterogeneous methanol carbonylation. *J. Catal.*, 381:193–203, 2020.
- [102] M. Hoener, D. Kaczmarek, T. Bierkandt, A. Bodi, P. Hemberger, and T Kasper. A pressurized flow reactor combustion experiment interfaced with synchrotron double imaging photoelectron photoion coincidence spectroscopy. *Rev. Sci. Instrum.*, 91(4):045115 (12 pp.), 2020.
- [103] S. Liang, **P. Hemberger***, M. Steglich, P. Simonetti, J. Levalois-Grützmacher, H. Grützmacher, and S. Gaan. The underlying chemistry to formation of po_2 radicals from organophosphorus compounds - a missing puzzle piece in the flame chemistry. *Chem. Eur. J.*, 2020.
- [104] M. N. McCabe, P. Hemberger, E. Reusch, A. Bodi, and J. Bouwman. Off the beaten path: almost clean formation of indene from the ortho-benzyne + allyl reaction. *J. Phys. Chem. Lett.*, 11(8):2859–2863, 2020.
- [105] E. Mendez-Vega, W. Sander, and **P. Hemberger***. Isomer-selective threshold photoelectron spectra of phenylnitrene and its thermal rearrangement products. *J. Phys. Chem. A*, 124(19):3836–3843, 2020.
- [106] C. Strobel, G. Gantefoer, A. Bodi, and P. Hemberger. Gridless electron trap for a high-duty cycle magnetic bottle time-of-flight spectrometer. *J. Electron Spectrosc. Relat. Phenom.*, 239:146900 (6 pp.), 2020.
- [107] **P. Hemberger***, J. A. van Bokhoven, J. Pérez-Ramírez, and A. Bodi. New analytical tools for advanced mechanistic studies in catalysis: photoionization and photoelectron photoion coincidence spectroscopy. *Catal. Sci. Technol.*, 10(7):1975–1990, 2020.
- [108] X. Wu, X. Zhou, P. Hemberger, and A. Bodi. A guinea pig for conformer selectivity and mechanistic insights into dissociative ionization by photoelectron photoion coincidence: fluorocyclohexane. *Phys. Chem. Chem. Phys.*, 22(4):2351–2360, 2020.
- [109] G. Zichittella, **P. Hemberger***, F. Holzmeier, A. Bodi, and J. Pérez-Ramírez. Operando photoelectron photoion coincidence spectroscopy unravels mechanistic fingerprints of propane activation by catalytic oxyhalogenation. *J. Phys. Chem. Lett.*, 11(3):856–863, 2020.

Other Publications

1. **P. Hemberger**, T. Gerber, A. Bodi, Vacuum ultraviolet ionization in combustion science: from pyrolysis to catalysis, *PSI Scientific Highlights*, 2012, ISSN 2235-3828.
2. **P. Hemberger***, A. Trevitt, E. Ross, G. da Silva, Direct observation of para-xylylene as the decomposition product of the meta-xylyl radical using synchrotron VUV radiation, *American Chemical Society LiveSlides*, 2013, <http://pubs.acs.org/iapps/liveslides/pages/index.htm?mscNo=jz401207z>
3. E. Reusch, F. Holzmeier, P. Constantinidis, **P. Hemberger***, I. Fischer. Isomer-Selective Generation and Spectroscopic Characterization of Biofuel Intermediates, Scientific Highlight posted on the Department Webpage: <https://www.psi.ch/sls/>, 31 May 2017.

4. Media Release of our publication in *Nat. Commun.* **2017**, *8* 15946. Fuel and chemicals from plant waste. <https://www.psi.ch/media/fuel-and-chemicals-from-plant-waste>, 29 June 2017.