

Bibliography – Renyi Zhang

Dr. Zhang has published 126 refereed journal papers, with 36 in AGU journals and 83 as a leading or corresponding author (denoted as *). His publications have covered the areas of cloud microphysics (4), thunderstorm electrification (5), stratospheric heterogeneous chemistry (16), lightning chemistry (7), hydrocarbon oxidation chemistry (36), aerosol formation, growth, and properties (24), urban air pollution (10), instrument development (5), atmospheric measurements of gases and aerosols (9), and aerosols-cloud-climate interaction (11). His work has resulted in more than 2700 literature citations, with an *h*-index of 34.

Selected Publications

- (1)* **Zhang, R.**, Getting to the critical nucleus of aerosol formation, *Science* **328**, doi:10.1126/science.1189732, 1366-1367, 2010.
- (2)* Wang, L., V. Lal, A.F. Khalizov, and **R. Zhang**, Heterogeneous Chemistry of Alkylamines with Sulfuric Acid: Implications for Atmospheric Formation of Alkylammonium Sulfates, *Environ. Sci. Technol.* **44**, 2461–2465, 2010. (Cited 1 time)
- (3)* Wang, L., A.F. Khalizov, J. Zheng, W. Xu, V. Lal, Y. Ma, and **R. Zhang**, Atmospheric nanoparticles formed from heterogeneous reactions of organics, *Nature Geosci.* **3**, 238-242, 2010. (Cited 6 times)
- (4)* **Zhang, R.**, L. Wang, A. F. Khalizov, J. Zhao, J. Zheng, R. L. McGraw, and L. T. Molina, Formation of nanoparticles of blue haze enhanced by anthropogenic pollution, *Proc. Natl. Acad. Sci. USA*, **106**, 17650-17654, 2009. (Cited 5 times)
- (5)* Li, G., Y. Wang, K.-H. Lee, Y. Diao, and **R. Zhang**, The impacts of aerosols on development and precipitation of a mesoscale squall line, *J. Geophys. Res.* **114**, D17205, 2009.
- (6)* Zhao, J., A.F. Khalizov, **R. Zhang**, R. McGraw, Hydrogen bonding interaction of molecular complexes and clusters of aerosol nucleation precursors, *J. Phys. Chem.* **113**, 680, 2009. (Cited 10 times)
- (7)* **Zhang, R.**, A.F. Khalizov, J. Pagels, D. Zhang, H. Xue, and P.H. McMurry, Variability in morphology, hygroscopic and optical properties of soot aerosols during internal mixing in the atmosphere, *Proc. Natl. Acad. Sci. USA* **105**, 10291–10296, 2008. (Cited 21 times)
- (8)* Zheng, J., **R. Zhang**, E. C. Fortner, R. M. Volkamer, L. Molina, A. C. Aiken, J. L. Jimenez, K. Gaeggeler, J. Dommen, S. Dusanter, P.S. Stevens, X. Tie, Measurements of HNO₃ and N₂O₅ using ion drift - chemical ionization mass spectrometry during the MCMA - 2006 campaign, *Atmos. Chem. Phys.* **8**, 6823–6838, 2008. (Cited 12 times)
- (9)* Li, G., Y. Wang, **R. Zhang**, Implementation of a two-moment bulk microphysics scheme to the WRF model to investigate aerosol-cloud interaction, *J. Geophys. Res.* **113**, D15211, 2008. (Cited 7 times)
- (10)* Fan, F., **R. Zhang**, W.-K. Tao, and K. Mohr, Effects of aerosol optical properties on deep convective clouds and radiative forcing, *J. Geophys. Res.* **113**, D08209, 2008. (Cited 13 times)
- (11)* **Zhang, R.**, G. Li, J. Fan, D.L. Wu, and M. J. Molina, Intensification of Pacific storm track linked to Asian pollution, *Proc. Natl. Acad. Sci. USA* **104**, 5295-5299, 2007. (Cited 20 times)
- (12)* Fan, J., **R. Zhang**, G. Li, W.-K. Tao, and X. Li, Simulations of cumulus clouds using a spectral microphysics cloud resolving model, *J. Geophys. Res.* **112**, D04201, 2007. (Cited 18 times)
- (13)* Zhao, J., N. P. Levitt, **R. Zhang**, and J. Chen, Heterogeneous reactions of methylglyoxal in acidic media: Implications for secondary organic aerosol formation, *Environ. Sci. Technol.* **40**, 7682-7687, 2006. (Cited 19 times)
- (14)* Fan, J., **R. Zhang**, D. Collins, and G. Li, Contribution of secondary condensable organics to new particle formation: A case study in Houston, Texas, *Geophys. Res. Lett.* **33**, L15802, doi:10.1029/2006GL026295, 2006. (Cited 23 times)
- (15) Tie, X., S. Madronich, S. Walters, D. Edwards, P. Ginoux, N. Mahowald, **R. Zhang**, C. Lou, and G. Brasseur, Assessment of global impact of aerosols on tropospheric oxidants, *J. Geophys. Res.* **110**, D03204, doi:10.1029/2004JD005359, 2005. (Cited 71 times)
- (16)* Zhao, J., **R. Zhang**, K. Misawa, and K. Shibuya, Experimental product study of the OH-initiated oxidation of m-xylene, *J. Photoch. Photobio. A* **176**, 199-207, 2005. (Cited 19 times)

- (17)* Fan, J., and **R. Zhang**, Atmospheric oxidation mechanism of isoprene, *Environ. Chem.* **1**, 140-149, 2004). (Cited 32 times)
- (18)* Fortner, E. C., J. Zhao, and **R. Zhang**, Development of ion drift-chemical ionization mass spectrometry, *Anal. Chem.* **76**, 5436-5440, 2004. (Cited 19 times)
- (19)* **Zhang, R.**, I. Suh, J. Zhao, D. Zhang, E.C. Fortner, X. Tie, L.T. Molina, M.J. Molina, Atmospheric new particle formation enhanced by organic acids, *Science* **304**, 1487-1490, 2004. (Cited 140 times)
- (20)* **Zhang, R.**, W. Lei, X. Tie, P. Hess, Industrial emissions cause extreme diurnal urban ozone variability, *Proc. Natl. Acad. Sci. USA* **101**, 6346-6350, 2004. (Cited 39 times)
- (21)* Zhao, J., and **R. Zhang**, Proton transfer reaction rate constants between hydronium ion (H_3O^+) and volatile organic compounds (VOCs), *Atmos. Environ.* **38**, 2177-2185, 2004. (Cited 46 times)
- (22)* Zhao, J., **R. Zhang**, E.C. Fortner, and S.W. North, Quantification of hydroxycarbonyls from OH-isoprene reactions, *J. Am. Chem. Soc.* **126**, 2686-2687, 2004. (Cited 39 times)
- (23)* Suh, I., **R. Zhang**, L.T. Molina, M.J. Molina, Oxidation mechanism of aromatic peroxy and bicyclic radicals from OH-toluene reactions, *J. Am. Chem. Soc.* **125**, 12655-12665, 2003. (Cited 45 times)
- (24)* **Zhang, R.**, X. Tie, and D.W. Bond, Impacts of anthropogenic and natural NO_x sources over the U.S. on tropospheric chemistry, *Proc. Natl. Acad. Sci. USA*, **100**, 1505-1509, 2003. (Cited 35 times)
- (25)* Zhang, D., and **R. Zhang**, Mechanism of OH formation from ozonolysis of isoprene: A quantum-chemical study, *J. Am. Chem. Soc.* **124**, 2692-2703, 2002. (Cited 43 times)
- (26)* Lei, W., **R. Zhang**, W.S. McGivern, A. Derecskei-Kovacs, and S.W. North, Theoretical study of OH-O₂-isoprene peroxy radicals, *J. Phys. Chem.* **105**, 471- 477, 2001. (Cited 41 times)
- (27) Orville, R.E., G. Huffines, J. Nielsen-Gammon, **R. Zhang**, B. Ely, S. Steiger, S. Philips, S. Allen, and W. Read, Enhancement of cloud-to-ground lightning over Houston, Texas, *Geophys. Res. Lett.* **28**, 2597-2600, 2001. (Cited 58 times)
- (28)* Nesbitt, S.W., **R. Zhang**, and R.E. Orville, Seasonal and global NO_x production by lightning estimated from the Optical Transient Detector (OTD), *Tellus B* **52**, 1206-1215, 2000. (Cited 40 times)
- (29)* Lei, W., A. Derecskei-Kovacs, and **R. Zhang**, Ab initio study of OH addition reaction to isoprene, *J. Chem. Phys.* **113**, 5354-5360, 2000. (Cited 41 times)
- (30)* **Zhang, R.**, M.T. Leu, and M.J. Molina, Formation of polar stratospheric clouds on preactivated background aerosols, *Geophys. Res. Lett.* **23**, 1669-1672, 1996. (Cited 36 times)
- (31)* **Zhang, R.**, M.T. Leu, L.F. Keyser, Hydrolysis of N_2O_5 and $ClONO_2$ on the $H_2SO_4/HNO_3/H_2O$ ternary solutions under stratospheric conditions, *Geophys. Res. Lett.* **22**, 1493, 1995. (Cited 37 times)
- (32)* **Zhang, R.**, M.T. Leu, and L.F. Keyser, Heterogeneous reactions involving $ClONO_2$, HCl, and HOCl on liquid sulfuric acid surfaces, *J. Phys. Chem.* **98**, 13563-13574, 1994. (Cited 50 times)
- (33)* **Zhang, R.**, J.T. Jayne, and M.J. Molina, Heterogeneous reactions of $ClONO_2$ and HCl on sulfuric acid tetrahydrate: Implications for the stratosphere, *J. Phys. Chem.* **98**, 867-874, 1994. (Cited 47 times)
- (34) Molina, M.J., **R. Zhang**, P.J. Wooldridge, J.E. Kim, J.R. McMahan, H.Y. Chang, and K.D. Beyer, Physical Chemistry of the $H_2SO_4/HNO_3/H_2O$ System: Implications for the Formation of Polar Stratospheric Clouds, *Science (Research Article)* **261**, 1418-1423, 1993. (Cited 185 times)
- (35)* **Zhang, R.**, P.J. Wooldridge, J.P.D. Abbatt, and M.J. Molina, Physical Chemistry of the H_2SO_4/H_2O Binary System at Low Temperatures: Implications for the Stratosphere, *J. Phys. Chem.* **97**, 7351-7358, 1993. (Cited 135 times)
- (36)* **Zhang, R.**, P.J. Wooldridge, and M.J. Molina, Vapor Pressure Measurements for the $H_2SO_4/HNO_3/H_2O$ and $H_2SO_4/HCl/H_2O$ Systems: Incorporation of Stratospheric Acids into Background Sulfate Aerosols, *J. Phys. Chem.* **97**, 8541-8548, 1993. (Cited 106 times)
- (37) Abbatt, J.P.D., K.D. Beyer, A.F. Fucaloro, J.R. McMahan, P.J. Wooldridge, **R. Zhang**, and M.J. Molina, Interaction of HCl Vapor with Water-Ice: Implications for the Stratosphere, *J. Geophys. Res.* **97**, 15819-15826, 1992. (Cited 146 times)
- (38) Williams, E.R., **R. Zhang**, and J. Rydock, Mixed Phase Microphysics and Cloud Electrification, *J. Atmos. Sci.* **48**, 2195-2203, 1991. (Cited 69 times)
- (39) Mitchell, D.L., **R. Zhang**, and R.L. Pitter, The Mass-Dimensional Relations for Ice Crystals and the Influence of Riming on the Snowfall Rate, *J. Appl. Meteor.* **29**, 153-163, 1990. (Cited 84 times)