Şcoala Doctorală de Chimie

TEMATICA PENTRU CONCURSUL DE ADMITERE LA DOCTORAT
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1. **Studiul degradării atmosferice a unor solvenţi organici curaţi în condiţii controlate (ro)**
   Study of the atmospheric degradation of selected clean organic solvents under controlled conditions(en)

Bibliografie/References

1. Seinfeld, J. H., Pandis, S. N., Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, Wiley, New York, **1998**.
2. Finlayson-Pitts, B. J.; Pitts, N. J., Jr. Chemistry of the Upper and Lower Atmosphere; Academic Press: San Diego, CA, **2000**.
3. Alder, C.M., Hayler, J.D., Henderson, R.K., Redman, A.M., Shukla, L., Shuster, L.E., Sneddon, H.F., Updating and further expanding GSK's solvent sustainability guide, *Green Chemistry*, 18, 3879–3890, **2016**.
4. Byrne, F. P., Forier, B., Bossaert, G., Hoebers, C., Farmer, T.J., Hunt, A.J., A methodical selection process for the development of ketones and esters as bio-based replacements for traditional hydrocarbon solvents. *Green Chemistry*, 20, 4003–4011, **2018**.
5. Mapelli C., Schleicher J.V., Hawtin A., Rankine C.D., Whiting F.C., Byrne F., Mcelroy C.R., Roman C., Arsene C., Olariu R.I., Bejan I.G., Dillon T.J., Atmospheric breakdown chemistry of the new "green" solvent 2,2,5,5-tetramethyloxolane via gas-phase reactions with OH and Cl radicals, Atmospheric Chemistry and Physics, 22, 14589-14602, **2022**.
6. Mapelli, C., Donnelly, J. K., Hogan, Ú. E., Rickard, A. R., Robinson, A. T., Byrne, F.,McElroy, C. R., Curchod, B. F. E., Hollas, D., and Dillon, T. J.: Atmospheric oxidation of new “green” solvents – Part 2: methyl pivalate and pinacolone, Atmos. Chem. Phys., 23, 7767-7779, **2023**.

2. **Studiul formării aerosolilor organici secundari prin oxidarea inițiată de radicalii nitrați a unor compouși fenolici în condiții de atmosferă controlată: Implicații privind mecanismele de nitrare atmosferică și formarea carbonului brun (ro)**
   Study of the secondary organic aerosols formation from nitrate radical-initiated oxidation of some phenolic compounds under controlled atmosphere conditions: Implications regarding atmospheric nitration mechanisms and brown carbon formation (en)

Bibliografie/References

1. Wayne, R.P, Barnes, I., Biggs, P., Burrows, J.P., Canosa-Mas, C.E., Hjorth, J., Le Bras, G., Moortgat, G.K., Perner, D., Poulet, G., Restelli, G., Sidebottom, H., The nitrate radical: Physics, chemistry, and the atmosphere, Atmospheric Environment. Part A. General Topics, 25, (1), 1-203, **1991**.

2. Seinfeld, J. H., Pandis, S. N., Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, Wiley, New York, **1998**.
3. Finlayson-Pitts, B. J.; Pitts, N. J., Jr. Chemistry of the Upper and Lower Atmosphere; Academic Press: San Diego, CA, **2000**.
4. Olariu, R. I.; Bejan, I.; Barnes, I.; Klotz, B.; Becker, K. H.; Wirtz,K., Rate Constants for the Gas-Phase Reaction of NO_3 Radicals withSelected Dihydroxybenzenes, International Journal of Chemical Kinetics,36, 577−583, **2004**.
5. Kroll, J.H. and Seinfeld, J.H., Chemistry of secondary organic aerosol: formation and evolution of low-volatility organics in the atmosphere, Atmospheric Environment, 42 (16), 3593-3624, **2008**.
6. Olariu, R. I., Barnes, I., Bejan, I., Arsene, C., Vione, D., Klotz, B., Becker, K. H., FT-IR Product Study of the Reactions of NO_3 Radicals with ortho-, meta-, and para-Cresol, Environmental Science & Technology, 47, 14, 7729–7738, **2013**.

3. Studiul contributiei amoniacului in formarea aerosolilor organici secundari de la degradarea oxidativa a unor hidrocarburi volatile biogene in conditii atmosferice controlate (ro)
The study of the contribution of ammonia in the formation of secondary organic aerosols from the oxidative degradation of some biogenic volatile hydrocarbons under atmospheric controlled conditions (en)

Bibliografie/References

1. Seinfeld, J. H., Pandis, S. N., Atmospheric Chemistry and Physics: From Air Pollution to Climate Change, Wiley, New York, **1998**.
2. Finlayson-Pitts, B. J.; Pitts, N. J., Jr. Chemistry of the Upper and Lower Atmosphere; Academic Press: San Diego, CA, **2000**.
3. Kroll, J.H. and Seinfeld, J.H., Chemistry of secondary organic aerosol: formation and evolution of low-volatility organics in the atmosphere, Atmos. Environ., 42 (16), 3593-3624, **2008**.
4. Li, K., Chen, L., White, S.J., Yu, H., Wu, X., Gao, X., Azzi, M., Cen, K., Smog chamber study of the role of NH_3 in new particle formation from photo-oxidation of aromatic hydrocarbons, Sci. Total Environ., 619–620, 927-937, **2018**.
5. Akimoto, H., Hirokawa, J. Atmospheric Multiphase Chemistry: Fundamentals of Secondary Aerosol Formation, Wiley-Blackwell, **2020**.
6. Srivastava, D., Vu, T.V., Tong, S. et al. Formation of secondary organic aerosols from anthropogenic precursors in laboratory studies. npj Clim Atmos Sci 5, 22, **2022**.

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