

ROBERTO RINALDI

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ACADEMIC RECORDS

- 44 publications in peer-reviewed journals
- 4 contributions to books
- 1 book (Editor) 'Catalytic Hydrogenation for Biomass Valorization' to be released end-2014 as part of the RSC Energy and Environment Series
- Ca. 50 oral communications in academic conferences (ca. 35 invited lectures)
- 10 patent applications in the field of catalysis and renewables
- 2 contributions to a non-specialized scientific magazines.
- Number of citations (May 17, 2014): 1331, h-Factor: 19
(Source: Scopus, 'Roberto Rinaldi' and 'Max-Planck-Institut für Kohlenforschung').
- Google Scholar citations (May 17, 2014): 1671, h-Factor: 22, i10-index 30
(Source: <http://scholar.google.de/citations?user=RNDs3hEAAAAJ>)

LIST OF PUBLICATIONS

1. Ferrini, P., Rinaldi, R.* (2014): Catalytic biorefining of plant biomass to non-pyrolytic lignin bio-oil and carbohydrates through hydrogen transfer reactions. *Angewandte Chemie International Edition*, (coming soon) DOI: 10.1002/anie.201403747R1 and 10.1002/ange.201403747R1
2. Rinaldi, R.* (2014): Plant biomass fractionation meets catalysis. *Angewandte Chemie International Edition*, (coming soon) DOI:10.1002/anie.201404464R1 and 10.1002/ange.201404464R1
3. Källdström, M., Meine, N., Farès, C., Schüth, F., Rinaldi, R.* (2014): Deciphering 'water-soluble lignocellulose' obtained by mechanocatalysis: New insights into the chemical processes leading to deep depolymerization. *Green Chemistry*, DOI 10.1039/C4GC00004H
4. Källdström, M., Meine, N., Farès, C., Rinaldi, R.*, Schüth, F.* (2014): Fractionation of 'water-soluble lignocellulose' into C5/C6 sugars and sulfur-free lignins. *Green Chemistry*, 16, 2454-2462.
5. Schüth, F.*, Rinaldi, R.*, Meine, N., Källdström, M., Hilgert, J., Kaufman Rechulski, M. D. (2014): Mechanocatalytic depolymerization of cellulose and raw biomass and downstream processing of the products. *Catalysis Today*, DOI:10.1016/j.cattod.2014.02.019

6. Geboers, J., Wang, X., de Carvalho, A. B., Rinaldi, R.* (2014): Densification of biorefinery schemes by H-transfer with Raney Ni and 2-propanol: A case study of a potential avenue for valorization of alkyl levulinates to alkyl γ -hydroxypentanoates and γ -valerolactone. *Journal of Molecular Catalysis A*, DOI: 10.1016/j.molcata.2013.11.031
7. Wang, X., Rinaldi, R.* (2013): A route for lignin and bio-oil conversion: Dehydroxylation of phenols into arenes by catalytic tandem reactions. *Angewandte Chemie International Edition* 52, 11499-11503.
8. Loerbroks, C. Rinaldi, R.*, Thiel, W.* (2013): The electronic nature of the 1,4-B-glycosidic bond and its chemical environment: DFT insights into cellulose chemistry. *Chemistry a European Journal* 19, 16282-16294.
9. Carrasquillo-Flores, R., Kåldström, M., Schüth, F., Dumesic,* J., Rinaldi, R.* (2013): "Mechanocatalytic depolymerization of dry (ligno)cellulose as an entry process for high-yield production of furfurals". *ACS Catalysis* 3, 993-997.
10. Hilgert, J., Meine, N., Rinaldi, R.*, Schüth, F.* (2013): Mechanocatalytic depolymerization of cellulose combined with hydrogenolysis as a highly efficient pathway to sugar alcohols. *Energy & Environmental Science* 6, 92-96.
11. Rinaldi, R.*, Reece, J. (2013): "Solution-based Deconstruction of (Ligno)-Cellulose" In: Behrens, Malte and Abhaya Datye (eds.) *Catalysis for the Conversion of Biomass and Its Derivatives*. Max Planck Research Library for the History and Development of Knowledge, Proceedings 2. Berlin: Edition Open Access (ISBN 978-3-8442-4282-9)
12. Wang, X., Rinaldi, R.* (2012): Exploiting H-transfer reactions with Raney Ni for upgrade of phenolic and aromatic biorefinery feeds under unusual, low-severity conditions. *Energy & Environmental Science* 5, 8244-8260.
13. Wang, X., Rinaldi, R.* (2012): Solvent effects on the hydrogenolysis of diphenyl ether with Raney Nickel and their implications for the conversion of lignin. *ChemSusChem* 5, 1455-1466.
14. Meine, N., Rinaldi, R.*, Schüth, F.* (2012):. *ChemSusChem* 5, 1449-1454.
15. Rinaldi, R.* (2012): Reply to "Comment on 'Instantaneous dissolution of cellulose in organic electrolyte solutions'". *Journal of Chemical and Engineering Data* 57, 1341-1343.
16. Rinaldi, R.* (2011): Instantaneous dissolution of cellulose in organic electrolyte solutions. *Chemical Communications* 47, 511-513.
17. Jäger, G., Girfoglio, M., Dollo, F., Rinaldi, R., Bongard, H., Commandeur, U., Fischer, R., Spiess, A. C., Büchs, J.* (2011): How recombinant swollenin from *Kluyveromyces lactis* affects cellulosic substrates and accelerates their hydrolysis. *Biotechnology for Biofuels* 4, 33. DOI: 10.1186/1754-6834-4-33
18. Engel, P., Bonhage, B., Pernik, D., Rinaldi, R., Schmidt, P., Wulfhorst, H., Spiess, A.C.* (2011): Population balance modelling of homogeneous and heterogeneous cellulose hydrolysis. *Computer Aided Chemical Engineering* 29, 1316-1320.

19. Jäger, G., Wu, Z., Garschhammer, K., Engel, P., Klement, T., Rinaldi, R., Spiess, A.,* Büchs, J.* (2010): Practical screening of purified cellobiohydrolases and endoglucanases with alpha-cellulose and specification of hydrodynamics. *Biotechnology for Biofuels* **3**, 18. DOI:10.1186/1754-6834-3-18
20. Bueno, J. M. C.,* Ferreira, A., Zanchet, D., Rinaldi, R., Schuchardt, U., Damyanova S. (2010): Effect of the CeO₂ content on the surface and structural properties of CeO₂-Al₂O₃ mixed oxides prepared by sol-gel method. *Applied Catalysis A: General* **388**, 45-56.
21. Meine, N., Benedito, F., Rinaldi, R.* (2010): Thermal stability of ionic liquids assessed by potentiometric titration. *Green Chemistry* **12**, 1711-1714.
22. Rinaldi, R.,* Engel, P., Büchs, J., Spiess, A. C., Schüth, F.* (2010): An integrated catalytic approach to fermentable sugars from cellulose. *ChemSusChem* **3**, 1151-1153.
23. Rinaldi, R.,* Meine, N., vom Stein, J., Palkovits, R., Schüth, F.* (2010): Which Controls the Depolymerization of Cellulose in Ionic Liquids: The Solid Acid Catalyst or Cellulose? *ChemSusChem* **3**, 266-276.
24. Palkovits, R.,* Tajvidi, K., Procelewska, J., Rinaldi, R., Ruppert, A. (2010): Hydrogenolysis of cellulose combining mineral acids and hydrogenation catalysts. *Green Chemistry* **12**, 972-978.
25. Liu, Y., Tuysuz, H., Jia, C. J., Schwickardi, M., Rinaldi, R., Lu, A. H., Schmidt, W., Schüth, F.* (2010): From glycerol to allyl alcohol: iron oxide catalyzed dehydration and consecutive hydrogen transfer. *Chemical Communications* **46**, 1238-1240.
26. Rinaldi, R.,* Schüth, F.* (2009): Acid hydrolysis of cellulose as the entry point into biorefinery schemes. *ChemSusChem* **2**, 1096-1107.
27. Rinaldi, R., Schüth, F.* (2009): Design of solid catalysts for the conversion of biomass. *Energy & Environmental Science* **2**, 610-626.
28. Rinaldi, R.,* Oliveira, H. F. N., Schumann, H., Schuchardt, U. (2009): Homogeneously catalyzed epoxidation of α,β -unsaturated ketones using simple aluminum salts and aqueous H₂O₂ - Is it possible? *Journal of Molecular Catalysis A: Chemical* **307**, 1-8.
29. Rinaldi, R., Buffon, R.* (2009): Surface Organometallic Chemistry of *d*(0) Metal Complexes, in *Modern Surface Organometallic Chemistry*, Eds. Basset, J.-M., Psaro, R., Roberto, D., Ugo, R. (Wiley-VCH), 417-453.
30. Rinaldi, R.,* Porcari, A. M., Rocha, T. C. R., Cassinelli, W. H., Ribeiro, R. U., Bueno, J. M. C., Zanchet, D.* (2009): Construction of heterogeneous Ni catalysts from supports and colloidal nanoparticles - A challenging puzzle. *Journal of Molecular Catalysis A: Chemical* **301**, 11-17.
31. Rinaldi, R., Palkovits, R., Schüth, F.* (2008): Depolymerisation von Cellulose unter Einsatz heterogener Säurekatalysatoren in ionischen Flüssigkeiten. *Chemie Ingenieur Technik* **80**, 1248-1248.

32. Rinaldi, R., Palkovits, R., Schüth, F.* (2008): Depolymerization of cellulose using solid catalysts in ionic liquids. *Angewandte Chemie International Edition* **47**, 8047-8050; *Angewandte Chemie* **120**, 8167-8170.
33. Araujo, J. C. S., Zanchet, D., Rinaldi, R., Schuchardt, U., Hori, C.E., Fierro, J. L. G., Bueno, J. M. C.* (2008): The effects of La₂O₃ on the structural properties of La₂O₃-Al₂O₃ prepared by the sol-gel method and on the catalytic performance of Pt/La₂O₃-Al₂O₃ towards steam reforming and partial oxidation of methane. *Applied Catalysis B: Environmental* **84**, 552-562.
34. Steffen, R. A., Teixeira, S., Sepulveda, J., Rinaldi, R., Schuchardt, U.* (2008): Alumina-catalyzed Baeyer-Villiger oxidation of cyclohexanone with hydrogen peroxide. *Journal of Molecular Catalysis A: Chemical* **287**, 41-44.
35. Rinaldi, R.,* Volpe, P. L. O., Torriani, I. L. (2008): L-Tryptophan transport through a hydrophobic liquid membrane using AOT micelles: Dynamics of the process as revealed by small angle X-ray scattering. *Journal of Colloid and Interface Science* **318**, 59-67.
36. Rinaldi, R., Fujiwara, F. Y., Schuchardt, U.* (2007): Chemical and physical changes related to the deactivation of alumina used in catalytic epoxidation with hydrogen peroxide. *Journal of Catalysis* **245**, 454-463.
37. Ferreira, A. P., Mortola, V. B., Rinaldi, R., Schuchardt, U., Bueno, J.M.C.* (2007): Designing Pt-catalysts by sol-gel chemistry: influence of the Pt addition methods in the catalyst stability in the partial oxidation of methane. *Studies in Surface Science and Catalysis* **167**, 511-516.
38. Rinaldi, R., Garcia, C., Marciniuk, L. L; Rossi, A. V., Schuchardt, U.* (2007): Synthesis of biodiesel: a contextualized experiment proposal for general chemistry laboratory. *Química Nova* **30**, 1374-1380.
39. Rinaldi, R., Fujiwara, F. Y., Hoelderich, W., Schuchardt, U.* (2006): Tuning the acidic properties of aluminas via sol-gel synthesis: new findings on the active site of alumina-catalyzed epoxidation with hydrogen peroxide. *Journal of Catalysis* **244**, 92-101.
40. Rinaldi, R., Fujiwara, F. Y., Schuchardt, U.* (2006): Structural, morphological and acidic changes of nanocrystalline aluminas caused by a controlled humidity atmosphere. *Applied Catalysis A, General* **315**, 44 - 51.
41. Silva, J. M. S., Vinhado, F., Mandelli, D., Schuchardt, U., Rinaldi, R.* (2006): The chemical reactivity of some terpenes investigated by alumina catalyzed epoxidation with hydrogen peroxide and by DFT calculations. *Journal of Molecular Catalysis A, Chemical* **252**, 186-193.
42. Rinaldi, R., Schuchardt, U.* (2005): On the paradox of transition metal-free alumina catalyzed epoxidation with aqueous hydrogen peroxide. *Journal of Catalysis* **236**, 335-345.
43. Rinaldi, R., Schuchardt, U.* (2005): Methyloxodiperoxyrhenium. In: *e-EROS, Electronic Encyclopedia of Reagents for Organic Synthesis*, Eds. Paquette, L. A., Wipf, P., Crich, D., Fuchs., P. L. (John Wiley Interscience), electronic release, doi:10.1002/047084289X.rn00610.

44. Rinaldi, R., Schuchardt, U.* (2005): Aquamethyloxodiperoxyrhenium. In: *e-EROS, Electronic Encyclopedia of Reagents for Organic Synthesis*, Eds. Paquette, L. A., Wipf, P., Crich, D., Fuchs., P. L. (John Wiley Interscience), electronic release, doi:10.1002/047084289X. rn00613.
45. Rinaldi, R., Schuchardt, U.* (2004): Factors responsible for the activity of alumina surfaces in the catalytic epoxidation of cis-cyclooctene with aqueous H₂O₂. *Journal of Catalysis* **227**, 109-116.
46. Rinaldi, R., Sepulveda, J., Schuchardt, U.* (2004): Cyclohexene and cyclooctene epoxidation with aqueous hydrogen peroxide using transition metal-free sol-gel alumina as catalyst. *Advanced Synthesis & Catalysis* **346**, 281-285.
47. Rinaldi, R., Fujiwara, F. Y., Schuchardt, U.* (2004): Hexaaquoaluminum(III) as an environmental friendly activator of hydrogen peroxide for the catalytic epoxidation of cis-cyclooctene. *Catalysis Communications* **5**, 333-337.
48. Cesquini, R. G., Silva, J. M. S., Woitiski, C. B., Mandelli, D., Rinaldi, R.; Schuchardt, U.* (2002): Alumina-catalyzed epoxidation with hydrogen peroxide: recycling experiments and activity of sol-gel alumina. *Advanced Synthesis & Catalysis* **344**, 911-914.

PUBLICATIONS IN NON-SPECIALIZED SCIENTIFIC MAGAZINES

1. Rinaldi, R. (2010): Biokraftstoffe aus Holz gewinnen. MPG Jahrbuch 2010 Max-Planck-Institut für Kohlenforschung.
2. Rinaldi, R., Schüth, F. (2009): Mit Salz aus Holz Zucker gewinnen. Spektrum der Wissenschaft, April 2009, 20-22.