PUBLICATIONS (ICI) RASMUS FEHRMANN

Ph.D.-degree(Lic. Techn.)

1. Svovls, Selens og Tellurs Kemi i Chloroaluminatsmelter (The Chemistry of Sulfur, Selenium and Tellurium in Chloroaluminate Melts).
   Rasmus Fehrmann, Thesis, Chemistry Department A, The Technical University of Denmark, Lyngby **1976**.

International refereed publications.

2. Lower Oxidation States of Selenium. I. Spectrophotometric Study of the Selenium-Selenium Tetrachloride System in a Molten NaCl-$AlCl_3$ Eutectic Mixture at 150°C.
   R. Fehrmann, N.J. Bjerrum and H.A. Andreasen, *Inorg. Chem. 14*, 2259, 1975.

3. Lower Oxidation States of Tellurium. 4. Tetratellurium(2+), Hexatellurium(2+), and Octatellurium(2+) in Chloroaluminate Melts.
   R. Fehrmann, N.J. Bjerrum and H.A. Andreasen, *Inorg. Chem. 15*, 2187, **1976**.

4. Lower Oxidation States of Selenium. 2. Potentiometric Study Involving Tetravalent Selenium, Tetraselenium(2+), Octaselenium(2+), and Three Other Low Oxidation States of Selenium in a Chloroaluminate Melt.
   R. Fehrmann and N.J. Bjerrum, *Inorg. Chem.* 16, 2089, **1977**.

5. Lower Oxidation Statees of Sulphur. 1. Spectrophotometric Study of the Sulphur-Chlorine System in Molten NaCl-$AlCl_3$ (37:63 mol %) at 150°C.
   R. Fehrmann, F.W. Poulsen and N.J. Bjerrum, *Inorg. Chem. 17*, 1195, **1978**.

6. Chloro Complexes in Molten Salts. 8. Potentiometric and Raman Spectroscopic Study of the Systems NaCl-$AlCl_3$, NaCl-$AlCl_3$-Na_2O, NaCl-$AlCl_3$-$SeCl_4$ and NaCl-$AlCl_3$-$SeCl_4$-Na_2O at 175°C.
   R. Fehrmann, J.H. von Barner, N.J. Bjerrum and O.F. Nielsen, *Inorg. Chem. 20*, 1712, **1981**.

7. Complex Formation in Pyrosulfate Melts. 1. Potentiometric, Cryoscopic, and Spectrophotometric Investigations of the Systems $K_2S_2O_7$-K_2SO_4 and $K_2S_2O_7$-K_2SO_4-V_2O_5 in the Temperature Range 410-450°C.
   Niels Holger Hansen, **Rasmus Fehrmann** and Niels J. Bjerrum, *Inorg. Chem. 21*, 744, **1982**.

8. Lower Oxidation States of Sulphur. 2. Spectrophotometric, Potentiometric and ESR-Study of the Sulphur-Chlorine System in Molten NaCl-$AlCl_3$ (37:63 mol %) at 150°C.
   R. Fehrmann, N.J. Bjerrum and E. Pedersen, *Inorg. Chem. 21*, 1497, **1982**.

9. Negative Oxidation States of the Chalcogens in Molten Salts. 2. Raman Spectroscopic, Spectrophotometric, and Electron Spin Resonance Studies on Chloroaluminate Solutions Containing an S_3^- Entity.
R. Fehrmann, S. von Winbush, G.N. Papatheodorou, R.W. Berg and N.J. Bjerrum, *Inorg. Chem. 21*, 3396, **1982**.

10. Raman Spectroscopic and Spectrophotometric Study of the System $K_2S_2O_7$-$KHSO_4$ in the Temperature Range 200 - 450°C.
Rasmus Fehrmann, Niels Holger Hansen and Niels J. Bjerrum, *Inorg. Chem. 22*, 4009, **1983**.

11. Raman Study of Halogen Exchange Equilibria in Low Melting Mixtures Consisting of Sodium Tetrachloroaluminate and Tetrabromaluminate.
R.W. Berg, E. Kemnitz, **R. Fehrmann** and N.J. Bjerrum, *Polyhedron 3*, 457 , **1985**.

12. Complex Formation in Pyrosulfate Melts. 2. Calorimetric Investigations of the systems V_2O_5-$K_2S_2O_7$, V_2O_5.$K_2S_2O_7$-K_2SO_4, V_2O_5.$2K_2S_2O_7$-K_2SO_4, and V_2O_5.$3K_2S_2O_7$-K_2SO_4 at 430°C.
R. Fehrmann, M. Gaune-Escard and N.J. Bjerrum, *Inorg. Chem. 25*, 1132, **1986**.

13. Crystal Sturcture and Infrared and Raman Spectra of $KV(SO_4)_2$.
R. Fehrmann, B. Krebs, G.N. Papatheodorou, R.W. Berg and N.J. Bjerrum, *Inorg. Chem. 25*, 1571, **1986**.

14. Complex Formation in Pyrosulfate Melts. 3. Density and Conductometric Measurements of the System V_2O_5-$K_2S_2O_7$ in the Temperature Range 350-490°C.
G. Hatem, **R. Fehrmann**, M. Gaune-Escard and N.J. Bjerrum, *J. Phys. Chem. 91*, 195, **1987**.

15. Crystal Structure and Infrared and Raman Spectra of $K_4(VO)_3(SO_4)_5$.
R. Fehrmann, S. Boghosian, G.N. Papatheodorou, K. Nielsen, R.W. Berg and N.J. Bjerrum, *Inorg. Chem. 28*, 1847, **1989**.

16. Formation of Crystalline Compounds and Catalyst Deactivation During SO_2 Oxidation in V_2O_5-$M_2S_2O_7$ (M = Na, K, Cs) Melts.
S. Boghosian, **R. Fehrmann**, N.J. Bjerrum and G.N. Papatheodorou, *J. Catal. 119*, 121, **1989**.

17. Crystal Structure and Vibrational Spectra of $Na_2VO(SO_4)_2$.
R. Fehrmann, S. Boghosian, G.N. Papatheodorou, K. Nielsen, R.W. Berg and N.J. Bjerrum, *Inorg. Chem. 29*, 3294, **1990**.

18. Conductivity, Thermal Analysis, and Phase Diagram of the System $Cs_2S_2O_7$-V_2O_5. Spectroscopic Characterization of the Compound $Cs_4(VO_2)_2(SO_4)_2S_2O_7$.
G.E. Folkmann, G. Hatem, **R. Fehrmann**, M. Gaune-Escard and N.J. Bjerrum, *Inorg. Chem. 30*, 4057, **1991**.

19. ESR-Investigations of Sulfuric Acid Catalyst Deactivation.
K.M. Eriksen, **R. Fehrmann** and N.J. Bjerrum, *J. Catal*. 131, 263, **1991**.

20. The Crystal Structure of $NaV(SO_4)_2$.
R. Fehrmann, S. Boghosian, G.N. Papatheodorou, K. Nielsen, R.W. Berg and N.J. Bjerrum, *Acta Chem. Scand. 45*, 961 , **1991**.

21. Catalytic Activity and Spectroscopic Investigations of the $M_2S_2O_7/V_2O_5$-$SO_2/O_2/SO_3/N_2$ System (M = Na, K, Cs).
D.A. Karydis, K.M. Eriksen, **R. Fehrmann**, G.N. Papatheodorou, and N.J. Bjerrum, *Mater. Sci. Forum 73-75*, 115, **1991**.

22. Investigations of Complex Formation and Phase Diagrams of Molten Salts Related to the Oxidized Form of Sulphuric Acid Catalysts.
G.E. Folkmann, G. Hatem, **R. Fehrmann**, M. Gaune-Escard and N.J. Bjerrum, *Mater. Sci. Forum 73-75*, 53, **1991**.

23. Complex Formation in Pyrosulfate Melts. 4. Density, Potentiometry, Calorimetry and Conductivity of the Systems $Cs_2S_2O_7$-Cs_2SO_4, $Cs_2S_2O_7$-V_2O_5 and $Cs_2S_2O_7$-Cs_2SO_4-V_2O_5 in the Temperature Range 430-550°C.
G.E. Folkmann, G. Hatem, **R. Fehrmann**, M. Gaune-Escard and N.J. Bjerrum, *Inorg. Chem. 32*, 1559, **1993**.

24. Crystal Structure of $Cs_4(VO)_2O(SO_4)_4$.
K. Nielsen, **R. Fehrmann** and K.M. Eriksen, *Inorg. Chem. 32*, 4825, **1993**.

25. Crystal Structure and Spectroscopic Characterization of the Compound $CsV(SO_4)_2$. Evidence for an Electronic Raman Transition.
R.W. Berg, S. Boghosian, N.J. Bjerrum, **R. Fehrmann**, B. Krebs, N. Sträter, O.S. Mortensen and G.N. Papatheodorou, *Inorg. Chem. 32*, 4714, **1993**.

26. Complex Chemistry and Vanadium(V) Reduction Equilibria in SO_2 Oxidation Molten Salt Catalysts.
D.A. Karydis, K.M. Eriksen, **R. Fehrmann** and S. Boghosian, *Proc. Int. Symp. on Molten Salts, ed. M.-L. Saboungi and H. Kojima, The Electrochemical Society, Pennington, N.J. 93-99*, 390-99, **1993**.

27. Conductivity and Phase Diagram of the System $M_2S_2O_7$-V_2O_5 (M = 80% K + 20% Na). Spectroscopic and X-Ray Characterization of the Compound $K_6(VO)_4(SO_4)_8$.
D.A. Karydis, S. Boghosian, **R. Fehrmann**, K.M. Eriksen and K. Nielsen, *Proc. Int. Symp. on Molten Salts, ed. M.-L. Saboungi and H. Kojima, The Electrochemical Society, Pennington, N.J. 93-99*, 490-97, **1993**.

28. Conductivity and Phase Diagram of the SO_2 Oxidation Catalyst Model System $M_2S_2O_7$-V_2O_5 (M = 80% K + 20% Na).
D.A. Karydis, S. Boghosian and **R. Fehrmann**, *J. Catal. 145*, 312, **1994**.

29. Calorimetric and Conductometric Investigations of the System $K_2S_2O_7$-V_2O_5 and $K_2S_2O_7$-K_2SO_4-V_2O_5 in the Range 390-500°C.
G. Hatem, **R. Fehrmann** and M. Gaune-Escard, *Thermochim. Acta, 243*, 63, **1994**.

30. High Temperature Spectrophotometric and ESR Spectroscopic Investigation of Vanadium Complexes in the Molten Salt-Gas System V_2O_5-$K_2S_2O_7$/SO_3-SO_2-N_2.
D.A. Karydis, K.M. Eriksen, **R. Fehrmann** and S. Boghosian, *J. Chem. Soc. Dalton Trans*. 2151, **1994**.

31. Conductivity, NMR, Thermal Measurements and Phase Diagram of the $K_2S_2O_7$-$KHSO_4$ System.
K.M. Eriksen, **R. Fehrmann**, G. Hatem, M. Gaune-Escard, O.B. Lapina and V.M. Mastikhin, *Molten Salts C.L. Hussey, D.S. Newman, G. Mamantov, and Y. Ito Eds., The Electrochemical Society Proceeding Series, Pennington, N.J., 94-13*, 124-31, **1994**.

32. Activity and Deactivation of Molten Salt Catalysts During SO_2 Oxidation and SO_2 Removal from Flue Gases.
S. Boghosian, A. Chrissanthopoulos, D.A. Karydis, S.G. Masters, K.M. Eriksen, and **R. Fehrmann**, *Molten Salts C.L. Hussey, D.S. Newmann, G. Mamantov, and Y. Ito Eds., The Electrochemical Society Proceeding Series, Pennington, N.J., 94-13*, 625-32, **1994**.

33. Synthesis and Crytal Structure of $Na_3V(SO_4)_3$. Spectroscopic Characterization of $Na_3V(SO_4)_3$ and $NaV(SO_4)_2$.
S. Boghosian, **R. Fehrmann** and K. Nielsen, *Acta Chem. Scand., 48*, 724, **1994**.

34. Multinuclear NMR Spectroscopy of the $Cs_2S_2O_7$-V_2O_5 System in the Temperature Range 25 - 550°C.
R. Fehrmann, K.M. Eriksen, V.M. Mastikhin, O.B. Lapina, *Proc. The International Hard Øye Symposium, ed. M. Sørlie et al., Institute of Inorg. Chem., Norwegian Institute of Technology, Universityof Trondheim, Norway, 387*, 88, **1995**.

35. Deactivation and Compound Formation in Sulfuric Acid Catalysts and Model Systems.
K.M. Eriksen, D.A. Karydis, S. Boghosian and **R. Fehrmann**, *J. Catal., 155*, 32, **1995**.

36. Multinuclear NMR Studies of $Cs_2S_2O_7$-V_2O_5 Melts.
O.B. Lapina, V.M. Mastikhin, K.M. Eriksen and **R. Fehrmann**, *J. Molec. Catal. A., 99*, 123, **1995**.

37. Synthesis Crystal Structure and Spectroscopic Characterization of β-$VOSO_4$.
S. Boghosian, K.M. Eriksen, **R. Fehrmann** and K. Nielsen, *Acta Chem. Scand., 49*, 703, **1995**.

38. Crystal Structure and Spectroscopic Characterization of the Mixed Valence V(IV)-V(V) Compound $K_6(VO)_4(SO_4)_8$.
K.M. Eriksen, K. Nielsen and **R. Fehrmann**, *Inorg. Chem., 35*, 480, **1996**.

39. Conductivity, NMR, Thermal Measurements and Phase Diagram of the $K_2S_2O_7$-$KHSO_4$ System.
K.M. Eriksen, **R. Fehrmann**, G. Hatem, M. Gaune-Escard, O.B. Lapina and V.M. Mastikhin, *J. Phys. Chem., 100*, 10771, **1996**.

40. In-situ Spectroscopic Studies and Modelling of Crystallization Processes of Sulphuric Acid Catalysts.
C. Oehlers**, R. Fehrmann**, S.G. Masters, K.M. Eriksen, D.E. Sheinin, B.S. Balzhinimaev and V.I. Elokhin, *Appl. Catal., 147 (1)*, 127, **1996**.

41. Physico-Chemical and Structural Properties of DeNOx and SO_2 Oxidation Catalysts.

S.G. Masters, C. Oehlers, K. Nielsen, K.M. Eriksen, **R. Fehrmann**, A. Chrissantopoulos and S. Boghosian, *Proc. Tenth International Symposium on Molten Salts, ed. R. Carlin et al., The Electrochemical Society, Pennington, N.J., 96-7*, 74-79, **1996**.

42. Catalytic Activity and Deactivation of SO_2 Oxidation Catalysts in Simulated Power Plant Flue Gases.
S.G. Masters, A. Chrissanthopoulos, K.M. Eriksen, S. Boghosian and **R. Fehrmann**, *J. Catal., 166*, 16, **1997**.

43. Hysteresis Phenomena in Sulfur Dioxide Oxidation over Supported Vanadium Catalysts.
S.G. Masters, K.M. Eriksen and **R. Fehrmann**, *J. Molec. Catal., A 120*, 227, 1997.

44. High Temperature NMR Studies of the Glass-Crystal Transition in the $Cs_2S_2O_7$-V_2O_5 System.
O.B. Lapina, V.V. Terskikh, A.A. Shubin, V.M. Mastikhin, K.M. Eriksen and **R. Fehrmann**, *J. Phys. Chem., 101*, 9188, **1997**.

45. Conductivity, NMR Measurements and Phase Diagram of the $K_2S_2O_7$-V_2O_5 System.
G.E. Folkmann, K.M. Eriksen, **R. Fehrmann**, M. Gaune-Escard, G. Hatem, O.B. Lapina and V. Terskikh., *J. Phys. Chem., 102*, 24, **1998**.

46. Conductometric, Density and Thermal Measurements of the $M_2S_2O_7$ (M = Na, K, Rb, Cs) Salts.
G. Hatem, F. Abdoun, M. Gaune-Escard, K.M. Eriksen and **R. Fehrmann**, *Thermochim. Acta, 319*, 33, **1998**.

47. Electrochemical and Spectroscopic Study on V(V) and V(IV) Sulfate Complex Formation in Pyrosulfate Melts.
R. Fehrmann and K.M. Eriksen, *Molten Salt Forum, 5-6*, 455, **1998**.

48. Phase Diagram of the $K_2S_2O_7$-V_2O_5 and $Rb_2S_2O_7$-V_2O_5 Systems .
F. Abdoun, G. Hatem, M. Gaune-Escard, K.M. Eriksen and **R. Fehrmann**, *Molten Salt Forum, 5-6*, 493, **1998**.

49. Diagramme d'Equilibre des Phases du Systeme $NaHSO_4$-$Na_2S_2O_7$ et Grandeurs Thermodynamique d'Exces.
G. Hatem, S.B. Rasmussen, K.M. Eriksen and **R. Fehrmann**, *Proc. XXIV Journées d'Etude des Equilibres entre Phases, eds. F.A. Kuhnast and J.J. Kuntz, Comptes rendus, Université Henri Poincaré, Nancy,* 4P, **1998**.

50. Spectroscopic and Electrochemical Investigations on the M_2SO_4-V_2O_5 System (M = Alkali) and Characterization of Compounds.
D.S. Schmidt, J. Winnick, S. Boghosian, **R. Fehrmann** and K.M. Eriksen, *Proc. Elleventh International Symposium on Molten Salts, ed. P.C. Trulove et al., the Electrochemical Society, Pennington, N.J., 98-11*, 491-98, **1998**.

51. Phase Diagrams and Physico-Chemical Properties of the $M_2S_2O_7$-V_2O_5 Systems (M = Na, K, Rb, Cs).
G. Hatem, M. Gaune-Escard, **R. Fehrmann** and K.M. Eriksen, *Proc. Elleventh International Symposium on Molten Salts, ed. P.C. Trulove et al., the Electrochemical Society, Pennington, N.J., 98-11*, 483-90, **1998**.

52. Thermodynamics and Complex formation in Pyrosulfate Melts.
R. Fehrmann, K.M. Eriksen, S.B. Rasmussen, M. Gaune-Escard and G. Hatem, *Proc. The International Terje Østvold Symposium, eds. H.A. Øye and O. Wærnes, Institute of Inorg. Chem., Norwegian Institute of Science and Technology, Trondheim, Norway,* 63-64, **1998**.

53. Electrochemical and Spectroscopic Investigations of the K_2SO_4-V_2O_5 Molten Electrolyte.
D.S. Schmidt, J. Winnick, S. Boghosian and **R. Fehrmann**, *J. Electrochem. Soc., 146*, 1060, **1999**.

54. High-Temperature Multinuclear NMR Studies of Vanadia Catalysts for SO_2 Oxidation.
O.B. Lapina, V.V. Terskikh, A.A. Shubin, K.M. Eriksen and **R. Fehrmann**, *Coll. and Surfaces A*, 158, 255, **1999**.

55. Conductivity, Thermal Measurements and Phase Diagram of the $Na_2S_2O_7$-$NaHSO_4$ System.
G. Hatem, M. Gaune-Escard, S.B. Rasmussen and **R. Fehrmann**.
J. Phys Chem., 103, 1027, **1999**.

56. The Crystal Structure and Spectroscopic Characterization of a Green V(IV) Compound, $Na_8(VO)_2(SO_4)_6$.
K. Nielsen, S. Boghosian, **R. Fehrmann** and R.W. Berg, *Acta Chem. Scand., 53*, 15, **1999**.

57. Thermal and Conductometric Investigations and Phase Diagram of the $Rb_2S_2O_7$ - V_2O_5 System.
F. Abdoun, G. Hatem, M. Gaune-Escard, K.M. Eriksen, and **R. Fehrmann**, *J. Phys. Chem., 103*, 3559, **1999**.

58. Equilibres entre Phases dans les Melanges $Rb_2S_2O_7$ - V_2O_5.
G. Hatem, M. Gaune-Escard, K.M. Eriksen, and **R. Fehrmann**, *Proc. XXV Journées d'Etude des Equilibres entre Phases, eds. J.L. Jorda, M. Lomello - Tafin and C. Opagiste, Comtes Rendus, LAIMAN and ESIA, Université de Savoie, Annecy, France,* pp 122 - 125, **1999**.

59. Progress on the mechanistic understanding of SO_2 oxidation catalysts.
O.B. Lapina, B.S. Bal'zhinimaev, S. Boghosian, K.M. Eriksen, and **R. Fehrmann**, *Catal. Today, 51*, 469, **1999**.

60. EPR Spectroscopic Characterization of DeNOx and SO_2 Oxidation Catalysts and Model-Systems.
K.M. Eriksen, C.K. Jensen, S.B. Rasmussen, C. Oehlers, B.S. Bal'zhinimaev and **R. Fehrmann**. *Catal. Today, 54*, 465, **1999**.

61. Sulfato Complex Formation of V(V) and V(IV) in Pyrosulfate Melts Investigated by Potentiometry and Spectroscopic Methods.
S.B. Rasmussen, K.M. Eriksen and **R. Fehrmann**, *J. Phys. Chem., 103*, 11282, **1999**.

62. Thermal Properties of the Compounds and Binary Systems, $M_2S_2O_7$, $MHSO_4$, $M_2S_2O_7$-$MHSO_4$, $M_2S_2O_7$-V_2O_5 (M=Na, K, Rb, Cs).
G. Hatem, M. Gaune-Escard, K.M. Eriksen and **R. Fehrmann**. *Proc. Int. G.N. Papatheodorou Symposium, Univ. of Patras, Greece, Sept. 16-18*, 73-77. **1999**.

63. Redox Equilibria in SO_2 Oxidation Catalysts.

S.B. Rasmussen, K.M. Eriksen, S. Boghosian and **R. Fehrmann**. Proc. Int. G.N. Papatheodorou Symposium, Univ. of Patras, Greece, Sept. 16-18, **1999**, pp 204-207.

64. Electrochemical Flue Gas Cleaning Using Molten Pyrosulfate-Based Membranes.
S.B. Rasmussen, K.M. Eriksen, **R.Fehrmann** and J.Winnick. *Proc. Twelfth International Symposium on Molten Salts, ed. P. Trulove et al., The Electrochemical Society, Pennington, N.J. vol. 99-41*, 694-697, **2000**.

65. Structural and Redox Properties of Vanadium Complexes in Molten Salts of Interest for the Catalytic Oxidation of Sulfur Dioxide.
S. Boghosian, A. Chrissanthopoulos amd **R. Fehrmann**. *Proc. Twelfth International Symposium on Molten Salts, ed. P. Trulove et al., The Electrochemical Society, Pennington, N.J., vol. 99-41*, 228-239, **2000**.

66. Diagramme de Phases du Systeme Binaire $CsHSO_4$-$Cs_2S_2O_7$.
S.B. Rasmussen, K.M. Eriksen, **R. Fehrmann** and G. Hatem, *Proc. XXVI Journees d'Etude des Equilibres entre Phases, eds. C. Bergman and G. Hatem, Comptes Rendus CNRS Université de Provence, Marseille, France*, 42-45, **2000**.

67. Environmental Catalysis - Pillared Clay DeNOX Catalysts and Electrocatalytical DeSOX Process.
R. Mattsson, S.B. Rasmussen, K.M. Eriksen, J. Winnick and **R. Fehrmann**. *Progr. Molten Salt Chem., 1*, 341, **2000**.

68. Gas-Liquid Equilibrium Reactions in the $Cs_2S_2O_7$-$CsHSO_4$-H_2O System at 200-470°C Investigated by Raman Spectroscopy.
S.B. Rasmussen, R.W. Berg and **R. Fehrmann**. *Progr.Molten Salt Chem., 1*, 449, **2000**.

69. Conductivity, Thermal Measurements and Phase Diagram of the $Na_2S_2O_7$-$K_2S_2O_7$ System.
S.B. Rasmussen, K.M. Eriksen, G. Hatem, F. da Silva, K. Ståhl and **R. Fehrmann**. *J. Phys. Chem.,* 105, 2747-2752, **2001.**

70. Calorimetric and Spectroscopic Measurements on the SO_2 Oxidation Catalyst Model System $M_2S_2O_7$-M_2SO_4-V_2O_5/SO_2(g) or Ar(g) (M = K or Cs) at 430-470°C.
G. Hatem, K. M. Eriksen and **R. Fehrmann**. *Thermochim. Acta, 379*, 187, **2001**.

71. Sulfate Solubility and Sulfato Complex Formation of V(V) and V(IV) in Pyrosulfate Melts.
S. B. Rasmussen, K. M. Eriksen and **R. Fehrmann**. *Proc. Int. Jondal 2000 Symposium, ed. C. Rosenkilde, Norsk Hydro, Norway*, 161-174, **2001**.

72. Selective Catalytic Reduction of NO by NH_3 over High Surface Area Vanadia-Silica Catalysts.
R.M. Carabă, S.G. Masters, K.M. Eriksen, V.I. Pârvulescu and **R. Fehrmann**. *Appl. Catal. B, 34*, 191, **2001**.

73. DeNOx and DeSOx Catalysts - Structure, Properties and Deactivation. Formation of crystalline compounds from molten salts during catalysis.
S.B. Rasmussen, R. Mattsson, K.M. Eriksen, K. Nielsen, J. Winnick, S. Boghosian, and **R. Fehrmann**. *Proc. 6th International Symposium on Molten Salt Chemistry and Technology, eds. C. Nianyi and Q.*

Zhiyu, Shanghai University Press, Shanghai, China, 288-291, **2001**.

74. Structures of vanadium oxosulfato complexes in V_2O_5-$M_2S_2O_7$-M_2SO_4 (M = K, Cs) melts. A high temperature spectroscopic study.
S. Boghosian, A. Chrissanthopoulos and **R. Fehrmann**, *J.Phys.Chem. 106*, 49, **2002**.

75. EPR and UV/VIS spectroscopic investigations of VO_2^+ complexes and compounds formed in alkali pyrosulfates.
S.B. Rasmussen, K.M. Eriksen and **R. Fehrmann**: *J.Chem.Soc. Dalton Trans.,* 87, **2002**.

76. Molten $V_2O_5/Cs_{0.9}K_{0.9}Na_{0.2}S_2O_7$ and $V_2O_5/K_2S_2O_7$ Electrolyte Performance in an Electrical Membrane Separation Device for Removal of SO_2.
S. B. Rasmussen, K. M. Eriksen, **R. Fehrmann** and J. Winnick, *J. Appl. Electrochem., 32*, 19, **2002**.

77. Thermodynamic Study of the Molten Salt Binary System $NaHSO_4$-$KHSO_4$.
M. Eriksen, **R. Fehrmann**, G. Hatem, *J. Therm. Anal. Cal., 68* , 25, **2002**.

78. Crystal Structure and Spectroscopic Properties of $Na_2K_6(VO)_2(SO_4)_7$.
D.A. Karydis, S. Boghosian, K. Nielsen, K. M. Eriksen, and **R. Fehrmann**, *Inorg.Chem., 41*, 2417, **2002**.

79. SO_2 Oxidation Catalyst Model Systems Characterized by Thermal Methods.
G. Hatem, K. M. Eriksen, M. Gaune-Escard and **R. Fehrmann**, *Top. Catal., 19*, 323, **2002**.

80. New Efficient Catalyst for Ammonia Synthesis: Barium-Promoted Cobalt on Carbon.
Stefan Hagen, Rasmus Barfod, **Rasmus Fehrmann**, Claus J.H. Jacobsen, Herman T. Teunissen, Kenny Ståhl, and Ib Chorkendorff, *Chem. Comm.,* 1206, **2002**.

81. Molten Salt Electrocatalytic Membrane Cells for Flue Gas Cleaning.
S.B. Rasmussen, K.M. Eriksen, J. Winnick, P. Simonsen and **R. Fehrmann**. *Proc. Thirteenth International Symposium on Molten Salts, eds. H. De Long et al., The Electrochemical Society, Pennington, N.J.,* 318, **2002**.

82. H. Hamma, M. Alaqui-Elbelghiti, K.M. Eriksen, **R. Fehrmann** and G. Hatem:
Etude thermodynamique des systèmes binaires $MHSO_4$-$NHSO_4$ (M, N=Na,K,Rb), *Proc. XXVIII Journées d'Etude des Equilibres entre Phases, eds. M. El Hadek et al., Comptes Rendus, Université Ibn Zohr, Agadir, Marocco,* 75, **2002**.

83. Ammonia Synthesis with Barium- Promoted Iron-Cobalt Alloys Supported on Carbon.
Stefan Hagen, Rasmus Barfod, **Rasmus Fehrmann**, Ib Chorkendorff, Claus J.H. Jacobsen, Herman T. Teunissen, *J. Catal.*, 214, **2003**.

84. Propene Hydroformylation by Supported Aqueous-phase Rh-NORBOS Catalysts.
A. Riisager, K.M. Eriksen, J. Hjortkjær, and **R. Fehrmann**, *J. Mol. Catal A.*, 193, **2003**.

85. Catalytic and Chemical Properties of Boiler Deposits from Orimulsion TM Fuel
Søren Birk Rasmussen, Stefan U. Hagen, Stephen G. Masters, Anke Hagen, Kenny Ståhl, K. Michael Eriksen, Peter Simonsen, Jørgen Nørklit Jensen, Mogens Berg, **Rasmus Fehrmann**, and Ib

Chorkendorff. *Power Plant Chem., 5(6)* 360-369, **2003**.

86. Crystal Structure and Spectroscopic Characterization of $K_8(VO)_2O(SO_4)_6$:
S .B. Rasmussen, R. M. Rasmussen, **R. Fehrmann**, and K. Nielsen,
Inorg.Chem., 42, 7123-7128, **2003**.

87. *Continuous fixed-bed gas-phase hydroformylation using supported ionic liquid-phase (SILP) Rh catalysts:
A. Riisager, P. Wasserscheid, R. Van Hal, and **R. Fehrmann**.
J. Catal., 219, 452-455, **2003.**

88. High Temperature NMR Studies of Ionic-Liquid Catalysts.
O.B. Lapina, V.V. Terskikh, B.S. Bal'zhinimaev, K.M. Eriksen and **R. Fehrmann**,
Applications of Ionic Liquids, eds. R.D. Rogers et al., Kluwer Acad. Publ., 85-104, **2003**.

89. Ionic Liquids as Catalysts for Sulfuric Acid Productions and Cleaning of Flue Gases.
R. Fehrmann, K.M. Eriksen, S.B. Rasmussen and J. Winnick.
Applications of Ionic Liquids, eds. R.D. Rogers et al., Kluwer Acad. Publ., 253-262, **2003**.

90. Thermal, Conductivity, NMR, and Raman Spectroscopic Measurements and Phase Diagram of the $Cs_2S_2O_7$-$CsHSO_4$ System.
Søren B. Rasmussen, Hind Hama, Olga Lapina, Dzhalil F. Khabibulin, K. Michael Eriksen, Rolf W. Berg, Gerard Hatem and **Rasmus Fehrmann**, *J. Phys. Chem. B, 107*, 13823-13830, **2003**.

91. Propene and 1-octene Hydroformylation with Silica Supported Ionic Liquid-Phase (SILP) Rh-phosphine Catalysts in Continuous Fixed-bed Mode.
Anders Riisager, K. Michael Eriksen, Peter Wasserscheid and **Rasmus Fehrmann**, *Catal. Lett., Vol. 90, Nos. 3-4*, 149-153, **2003**.

92. Physico-chemical Properties and Transition Metal Complex Formation in Alkali Pyrosulphate and Hydrogen Sulphate Melts.
S.B. Rasmussen, H. Hamma, K.M. Eriksen, G. Hatem, M. Gaune-Escard and **R. Fehrmann**, *Proc. 7th International Conference on Molten Slags, Fluxes and Salts. The South African Institute of Mining and Metallurgy, Johannesburg, South Africa,* 189-196, **2004**.

93. Crystal Structure and Spectroscopic Properties of $CsVO_2SO_4$.
S.B. Rasmussen, S. Boghosian, K. Nielsen, K.M. Eriksen and **R. Fehrmann**, *Inorg. Chem., 43, No 12*, 3697-3701, **2004**.

94. Vanadia-Silica and Vanadia-Cesium-Silica Catalysts for Oxidation of SO_2.
Vasile I. Pârvulescu, Christina Paun, Viorica Pârvulescu, Mihai Alifanti, Ionna Giakoumelou, Soghomon Boghosian, Søren B. Rasmussen, Kim. M. Eriksen, and **Rasmus Fehrmann**, *J. Catal., 225*, 24-36, **2004**.

95. *Very Stable and Highly Regioselective Supported Ionic Liquid-Phase (SILP) Catalysis : Continuous-Flow Fixed-Bed Hydroformylation of Propene.

A. Riisager, **R. Fehrmann**, S. Flicker, R. van Hal, M. Haumann and P. Wasserscheid, *Angew. Chem. Int. Ed.*, 44, 656-665, **2005.**

96. Vanadia on Sulphated ZrO_2, a Promising Catalyst for NO Abatement with Ammonia in Alkali Containing Flue Gases.
A.L. Kustov, M. Yu. Kustova, **R. Fehrmann**, and P. Simonsen. *Appl. Catal. (B)*, *Environmental, 58*, 97-104, **2005.**

97. The Crystal Structure Determinations and Refinements of $K_2S_2O_7$, $KNaS_2O_7$ and $Na_2S_2O_7$ from X-ray Powder and Single Crystal Diffraction Data.
Kenny Ståhl, Tonci Balic-Zunic, Fransisco da Silva, K. Michael Eriksen, Rolf W. Berg, **Rasmus Fehrmann**. *J. Solid State Chem., 178*, 1697-1704, **2005.**

98. Thermomorphic Phase Separation in Ionic Liquid-Organic Liquid Systems-Conductivity and Spectroscopic Characterization.
Anders Riisager, **Rasmus Fehrmann**, Rolf W. Berg, Roy van Hal and Peter Wasserscheid. *Phys. Chem. Chem. Phys., 7*, 3052-3058, **2005.**

99. Stability and Kinetic Studies of Supported Ionic Liquid Phase (SILP) Catalysts for Hydroformylation of Propene.
Anders Riisager, **Rasmus Fehrmann**, Marco Haumann, Babu S.K. Gorle, Peter Wasserscheid. *Ind. Eng. Chem. Res. 44* (26), 9853-9859, **2005.**

100. Catalysis in Ionic Media.
R. Fehrmann, A. Riisager and S.B. Rasmussen, *Proc., 7th Int. Symp. Molten Salts Chemistry and Technology*, Université Paul Sabatier, Toulouse, France, 5 pages, **2005.**

101. Conductivity, Calorimetry and phase diagram of the $NaHSO_4$-$KHSO_4$ System.
H. Hamma, S.B. Rasmussen, J.C. Mathieu, J. Rogez, K.M. Eriksen, **R. Fehrmann**. *Thermochem. Acta*, *440*. (2), 200-204, **2006.**

102. Supported Ionic Liquid Phase (SILP) Catalysis: An Innovative Concept for Homogeneous Catalysis in Continuous Fixed-Bed Reactors.
A.Riisager, **Rasmus Fehrmann**, M. Haumann, and P. Wasserscheid. *Eur. J. Inorg. Chem.* 695-706, **2006.**

103. First Application of Supported Ionic Liquid Phase (SILP) Catalysis for Continuous Methanol Carbonylation.
A.Riisager, B. Jørgensen, P. Wasserscheid and **Rasmus Fehrmann**. *Chem. Commun.*, 994-996, **2006.**

104. Titania Supported Pt and Pt-Pd Nano-particle Catalysts for the Oxidation of Sulfur Dioxide.
S. Koutsopoulos, T. Johannessen, K. M. Eriksen and **R. Fehrmann**. *J. Catal.*, *238*, 206-213, **2006.**

105. Synthesis and Characterization of Supported Pt and Pt Alloys Nanoparticles used for the Catalytic Oxidation of Sulfur Dioxide.
S. Koutsopoulos, K.M. Eriksen and **R. Fehrmann**. *J. Catal.*, *238*, 270-27,**2006.**

106. Tungstated Zirconia as Promising Carrier for $DeNO_x$ Catalysts with Improved Resistance toward Alkali Poisoning.
J. Due-Hansen, A.L. Kustov, S.B. Rasmussen, **R. Fehrmann** and C.H. Christensen. *Appl. Catal. B*, *66*, 161-167, **2006.**

107. Supported Ionic Liquids: Versatile Reaction and Separation Media.
A. Riisager, R. Fehrmann, M. Haumann, P. Wasserscheid, *Topics in Catal*., *40*, 91-102, **2006**.

108. *Reversible Physical Absorption of SO_2 by Ionic Liquids.
J. Huang, A. Riisager, **R. Fehrmann** and P. Wasserscheid, *Chem. Commun*., 4027-4029, **2006.**

109. The Role of Support and Promoter on the Oxidation of Sulfur Dioxide using Platinum Based Catalysts.
S. Koutsopoulos, S. B. Rasmussen, K.M. Eriksen and **R. Fehrmann**. *Appl. Catal. A,* 306, 142-148, **2006**.

110. Characterization and Regeneration of Pt Catalysts Deactivated in Municipal Waste Flue Gas.
S.B. Rasmussen, A. Kustov, J. Due-Hansen, B.Siret, F. Tabaries and **R. Fehrmann**. *Appl. Catal. B*, *69*, 10-16, **2006**.

111. Flue Gas Cleaning With Alternative Processes and Reaction Media.
Soren Birk Rasmussen, Jun Huang, Anders Riisager, Hind Hamma, Jacquez Rogez, J. Winnick, Peter Wasserscheid, and **Rasmus Fehrmann**. *Electrochem. Soc. Trans.*, *3*, 35 - 39, **2007**.

112. Activity and deactivation of sulphated TiO_2- and ZrO_2-based V, Cu, and Fe oxide catalysts for NO abatement in alkali containing flue gases.
A.L. Kustov, S.B. Rasmussen, **R. Fehrmann**, P. Simonsen. *Appl. Catal. B.*, 76, 9-14, **2007.**

113. Vanadia-Based SCR catalysts supported on tungstated and sulphated zirconia: Influence of doping with potassium.
Johannes Due-Hansen, Soghomon Boghosian, Arkady Kustov, Peter Fristrup, George Tsilomelekis, Kenny Ståhl, Claus Hviid Christensen, **Rasmus Fehrmann**. *J. Catal.*, 251, 459-473, **2007.**

114. On the constitution of a vapor over an ionic liquid: Raman spectra of 1,1,3,3-tetramethylguanidinium chloride in the solid state, in solution and in the vapour phase.
R.W. Berg, A. Riisager and **R. Fehrmann**, *J. Phys. Chem. A*, 112, 8585-8592, **2008.**

115. Thermal dissociation of molten $KHSO_4$: Temperature dependence of Raman spectra and thermodynamics.
Knudsen, C.B., Kalampounias, A.G., **Fehrmann, R.** and Boghosian S. *J. Phys. Chem. B.*, 112, 11996-12000, **2008.**

116. Deactivation of Vanadia-based Commercial SCR Catalysts by Polyphosphoric Acids.
F. Castellino, S.B. Rasmussen, A.D. Jensen, J. E. Johnson, **R. Fehrmann**. *Appl. Catal. B*. *Environmental,* 83, 110-122, **2008.**

117. *Tuning Ionic Liquids for High Gas Solubility and Reversible Gas Absorption.

J. Huang, A. Riisager, R.W. Berg and **R. Fehrmann**, *J. Molec. Catal. A*, 279, 170-176, **2008.**

118. Catalytic SILP materials.
A. Riisager, **R. Fehrmann**, M. Haumann, P. Wasserscheid. *Top. Organomet. Chem.*, 23, p. 149-162, **2008**.

119. Formation of an Ion-Pair Molecule with a Single NH+...Cl- Hydrogen Bond: Raman spectra of 1,1,3,3-Tetramethylguanidinium chloride in the solid state, in solution and in the vapor phase
R. W. Berg, A. Riisager, **R. Fehrmann**. *J. Phys.Chem. A*: Molecules, Spectroscopy, Kinetics, Environment and General Theory, 112, p. 8585-8592, **2008**

120. Catalytic Ammonia Decomposition Over Ruthenium Nanoparticles Supported on Nano-Titanates
A.Klerke, S. K. Klitgaard, **R. Fehrmann**, *Catal. Lett.*, 130, (3-4), p. 541-546, **2009**.

121. Crystal Structure, Vibrational Spectroscopy and ab Initio Density Functional Theory Calculations on the Ionic Liquid forming 1,1,3,3-Tetramethylguanidinium bis{(trifluoromethyl)sulfonyl}amide
R.W. Berg, A. Riisager, O.Nguyen van Buu, **R. Fehrmann**, P. Harris, A.A. Tomaszowska, K.R. Seddon. *J. Phys. Chem. B: Condensed Matter, Materials, Surfaces, Interfaces & Biophysical*, Vol: 113(26), p 8878-8886, **2009.**

122. Fe-BEA Zeolite Catalysts for NH3-SCR of NOx.
A.M. Frey, S. Mert, J. Due-Hansen, **R. Fehrmann**. *Catal. Lett.*, 130 (1-2), p. 1-8, **2009.**

123. Gas-Phase Oxidation of Aqueous Ethanol by Nanoparticle Vanadia/Anatase Catalysts.
B. Jørgensen, S.B. Kristensen, A.J. Kunov-Kruse, **R. Fehrmann**, C.H. Christensen, A. Riisager. *Top. Catal.*, 52 (3), p. 253-257, **2009.**

124. Impact of support and potassium-poisoning on the V_2O_5-WO_3/ZrO_2 Catalyst Performance in Ammonia Oxidation.
J. Due-Hansen, A.L. Kustov, C.H. Christensen, **R. Fehrmann**. *Catal. Comm.*, 10 (6), p. 803-806, **2009.**

125. Influence of reaction products of K-getter fuel additives on commercial vanadia-based SCR catalysts : Part I. Potassium phosphate
F. Castellino, A.D. Jensen, J.E. Johnsson, **R. Fehrmann**. *Appl. Catal. B*: Environmental, 86 (3-4), p. 196-205, **2009**.

126. Influence of reaction products of K-getter fuel additives on commercial vanadia-based SCR catalysts Part II. Simultaneous addition of KCl, Ca(OH)(2), H_3PO_4 and H_2SO_4 in a hot flue gas at a SCR pilot-scale setup
F. Castellino, A.D. Jensen, J.E. Johnsson, **R. Fehrmann**. *Appl. Catal. B*: Environmental, 86 (3-4), p. 206-215, **2009**.

127. Seed-assisted sol-gel synthesis and characterization of nanoparticular V2O5/anatase.
A.J. Kunov-Kruse,S.B. Kristensen, A.Riisager, S.B Rasmussen, **R.Fehrmann**. *J.Mat.Sci.* 44 (1)p. 323-327, **2009**.

128. Structure of caesium disulfate at 120 and 273 K.

S. Ståhl, R.W. Berg, K.M.Eriksen**, R. Fehrmann**. *Acta Cryst*. *B*: Structural Science, 65(5), p. 551-557, **2009**.

129. The Effect of Acidic and Redox Properties of $V_2O_5/CeO_2–ZrO_2$.
S.S.R. Putluru, A. Riisager**, R. Fehrmann**. *Catal.Lett*. 133(3-4), p. 370-375, **2009**

130. Vanadia supported on zeolites for SCR of NO by ammonia. S.S.R. Putluru, A. Riisager and **R. Fehrmann**, *Appl. Catal. B*, **2010**, *97*, 333-339.

131. Pore design of pelletised VO_X/ZrO_2-SO_4/Sepiolite composite catalysts. S.B. Rasmussen, J. Due-Hansen, M. Yates, M. Villaroel, L. Gil, J. Javier, **R. Fehrmann**, P. Ávila. *Stud.Surf. Sci. Catal.*, **2010**, 175, 739-742.

132. SCR activity of conformed CuOx/ZrO_2-SO_4 catalysts. S.B. Rasmussen, M. Yates, . Due-Hansen, P. Ávila, **R. Fehrmann**. *Stud.Surf.Sci.Catal.*, **2010**, 175, 735-738.

133. X-ray crystal structure, Raman spectroscopy and ab initio DFT calculations on 1,1,3,3-tetramethylguanidinium bromide. R. Berg, A. Riisager, O.V.B. Nguyen, **R. Fehrmann**, P. Harris, S.B. Kristensen and A. Brunetti, *J. Phys. Chem. A*, **2010,** 114, 13175-13181.

134. *Selective gas absortion by ionic liquids. S. Shunmugavel, S. Kegnæs, J. Due-Hansen, T.A. Gretasdottir, A. Riisager and **R. Fehrmann**, *Electrochem. Soc. Trans.,* **2010**, 33, 117-126.

135. Alkali resistant Cu/Zeolite deNO_X catalysts for flue gas cleaning in biomass fired applications. S.S.R. Putluru, A. Riisager and **R. Fehrmann**, *Appl. Catal. B*, **2011**, 101, 183-188.

136. Structural characterization and catalytic properties of bis(1,1,3,3-tetramethylguanidinium) dichromate. J. Due-Hansen, K. Ståhl, S. Boghosian, A. Riisager and **R. Fehrmann**, *Polyhedron*, **2011,** 30, 785-789.

137. Selective oxidation of propylene to acrolein by silica-supported bismuth molybdate catalysts. D.D. Truong, H.H. Nguyen, **R. Fehrmann**, A. Riisager and L.M. Thang, *Res. Chem. Interm.* **2011**, 37, 605-616.

138. Alkali resistant Fe-zeolite catalysts for SCR of NO with NH_3 in flue gases. S.S.R. Putluru, A.D. Jensen, A. Riisager and **R. Fehrmann**, *Top. Catal.*, **2011**, 54, 1286-1292.

139. Heteropoly acid promoted Cu and Fe catalysts for the selective catalytic reduction of NO with ammonia. S.S.R. Putluru, A. Riisager and **R. Fehrmann**, *Catal. Today,* **2011**, 176, 292-297.

140. High performance vanadia-anatase nanoparticle catalysts for the selective catalytic reduction of NO by ammonia. S.B. Kristensen, A.J. Kunov-Kruse, A. Riisager, S.B Rasmussen and **R. Fehrmann**. *J. Catal.*, **2011**, 284, 60-67.

141. Redox behaviour of vanadium during hydrogen-oxygen exposure of the V2O5-WO3/TiO2 SCR catalyst at 250 degrees C. J. Due-Hansen, S.B. Rasmussen, E. Mikolajska, M.A. Banares, P. Avila and **R. Fehrmann**, *Appl. Catal. B*, **2011**,107, 340-346.

142. Hydrodeoxygenation of waste fat for diesel production: Study on model feed with Pt/alumina catalyst. A. T. Madsen, E. H. Ahmed, C.H. Christensen , **R. Fehrmann** and A. Riisager, *Fuel*, **2011**, *90*, 3433-3438.

143. Challenges and perspectives for catalysis in production of diesel from biomass. A. T. Madsen, H. Søndergaard, **R. Fehrmann** and A. Riisager, *Biofuels*, **2011**, 2, 465-483.

144. Heteropoly acid promoted V2O5/TiO2 catalysts for NO abatement with ammonia in alkali containing flue gases. S.S.R. Putluru, A.D. Jensen, A. Riisager and **R. Fehrmann**, *Catalysis Science & Technology*, **2011**, 1, 631-637.

145. Synergy effects in mixed Bi_2O_3, MoO_3 and V_2O_5 catalysts for selective oxidation of propylene. T. T. Nguyen, L. M. Thang, D. D. Truong, **R. Fehrmann**, A. Riisager and I. van Driessche, *Res. Chem. Interm.*, **2012**, 38, 829-846.

146. Pharmaceutically active ionic liquids with solids handling, enhanced thermal stability, and fast release. K. Bica, H. Rodriguez, G. Gurau, O. A. Cojocaru, A. Riisager, **R. Fehrmann** and R. D. Rogers, *Chem. Comm.*, **2012**, 48, 5422-5424.

147. Ethanol-selective catalytic reduction of NO by Ag/Al2O3 catalysts: Activity and deactivation by alkali salts. L. Schill, S. S. R. Putluru, C. F. Jacobsen, C. H. Hansen, **R. Fehrmann** and A. D. Jensen, *Appl. Catal. B*, **2012**, 127, 323-329.

148. Characterization and parametrical study of Rh-TPPTS supported ionic liquid phase (SILP) catalysts for ethylene hydroformylation. H. T. H. Nguyen, D. D. Truong, V. D. Thang, L. M. Thang, A. Riisager and **R. Fehrmann**, *Catal. Comm*., **2012**, 25, 136-141.

149. *CO2 capture technologies: current status and new directions using supported ionic liquid phase (SILP) absorbers. H. Kolding, **R. Fehrmann** and A. Riisager, *Sci. China Chem.*, **2012**, 55, 1648-1656.

150. *Synthesis and Characterization of Ammonium-, Pyridinium-, and Pyrrolidinium-Based Sulfonamido Functionalized Ionic Liquids. S. Shunmugavel, **R. Fehrmann** and A. Riisager, *Synth. Commun*., **2012**, 42, 3383-3394.

151. Alternative alkali resistant deNO_X catalysts. S.S.R. Putluru, S.B. Kristensen, J. Due-Hansen, A. Riisager and **R. Fehrmann**, *Catal. Today*, **2012**, *184*, 192-196.

152. Alkali resistivity of Cu based selective catalytic reduction catalysts: Potassium chloride aerosol exposure and activity measurements. S.S.R. Putluru, A. D. Jensen, A. Riisager and **R. Fehrmann**, *Catal. Commun.*, **2012**, *18*, 41-46.

153. Conversion of methanol to hydrocarbons over conventional and mesoporous H-ZSM-5 and H-Ga-MFI:

Major differences in deactivation behavior. U. V. Mentzel, K. T. Højholt, M. S. Holm, **R. Fehrmann** and P. Beato, *Appl. Catal. A*, **2012**, *417-418*, 290-297.

154. Deactivation in Continuous Deoxygenation of C_{18}-Fatty Feedstock over Pd/Sibunit. A. T. Madsen, B. Rozmysłowicz, P. Mäki-Arvela, I. L. Simakova, K. Eränen, Y. D.Murzin and **R. Fehrmann**, *Topics in Cata*l., **2013**, *56*, 714-724.

155. An alternative pathway for production of acetonitrile: Ruthenium catalysed aerobic dehydrogenation of ethylamine. E.C. Corker, U.V. Mentzel, J. Mielby, A. Riisager and **R. Fehrmann**, *Green Chem.*, **2013**, *15*, 928-933.

156. *Separation of flue gas components by SILP (Supported Ionic Liquid-Phase) absorbers. P. Thomassen, A.J. Kunov-Kruse, S. Mossin, H. Kolding, S. Kegnæs, A. Riisager and **R. Fehrmann**, *ECS Trans.*, **2013**, *50*, 433-442.

157. *Revisiting the Brønsted acid catalysed hydrolysis kinetics of polymeric carbohydrates in ionic liquids by in-situ ATR-FTIR spectroscopy. A.J. Kunov-Kruse, A. Riisager, S. Saravanamurugan, R.W. Berg, S.B. Kristensen and **R. Fehrmann**, *Green Chem.*, **2013**, *15*, 2843-2848.

158. Structural characterization of the 1,1,3,3-tetramethylguanidinium chloride ionic liquid by reversible SO_2 gas absorption. R.W. Berg, P. Harris, A. Riisager and **R. Fehrmann**, *J. Phys. Chem. A*, **2013**, *117*,11364−11373.

159. Pd-catalyzed ethylene methoxycarbonylation with Brønsted acid ionic liquids as promoter and phase-separable reaction media. E. J. García-Suárez, S. G. Khokarale, O. N. van Buu, **R. Fehrmann** and A. Riisager *Green Chem.*, **2014**, *16*, 161-166.

160. Zwitterion enhanced performance in palladium-phosphine catalyzed ethylene methoxycarbonylation. S. G. Khokarale, E. J. García-Suárez, J. Xiong, U.V. Mentzel, **R. Fehrmann** and A. Riisager, *Catal. Commun.*, **2014**, *44*, 73-75.

161. Low-Temperature NH3–SCR of NO on Mesoporous Mn0.6Fe0.4/ TiO2 Prepared by a Hydrothermal Method. L. Schill, S. S. R. Putluru, R. Fehrmann and A. D. Jensen, *Catal. Lett.*, **2014**, *144*, 395-402.

162. Superior $DeNO_x$ activity of V_2O_5–WO_3/TiO_2 Catalysts Prepared by Deposition–precipitation Method. S. S. R. Putluru, L. Schill, D. Gardini, S. Mossin, J. B. Wagner, A. D. Jensen and R. Fehrmann, *J. Mat. Sci.,* **2014**, *7*, 2705-2713.

163. Amine-Functionalized Amino Acid-based Ionic Liquids as Efficient and High-Capacity Absorbents for CO_2 . S. Shunmugavel, A.J. Kunov-Kruse, R. Fehrmann and A. Riisager, *ChemSusChem.,* **2014** , *7*,

897.

164. Hydrothermally Stable Fe-W-Ti SCR Catalysts Prepared by Deposition-precipitation. S. S. R. Putluru, L. Schill, R. Fehrmann and A. D. Jensen, *Catal. Lett*. **2014** , *144,* 1170-1177.

165. Effect of Fe doping on low temperature deNOx activity of high-performance vanadia-anatase nanoparticles. Schill, Leonhard ; Putluru, Siva Sankar Reddy ; Jensen, Anker Degn ; **Fehrmann, Rasmus**, *Catal. Comm,.* **2014**, *56*,110–114.

166. Efficient epoxidation of propene using molecular catalysts. J. I. E. Markovits, M. H. Anthofer, H. Kolding, M. Cokoja, A. Pöthig, A. Raba, W. A. Herrmann, **R. Fehrmann**, F. E. Kühn, *Catal. Sci.&Techn.,* **2014**, *4*, 3845-3849.

167. Mn/TiO2 and Mn-Fe/TiO2 catalysts synthesized by deposition precipitation-promising for selective catalytic reduction of NO with NH3 at low temperatures. S. S. R. Putluru, L. Schill, A. D. Jensen, B. Siret, F. Tabaries, **R. Fehrmann**, *Appl. Catal. B*, **2015**,*168*, 628-635.

168. MnFe/Al2O3 Catalyst Synthesized by Deposition Precipitation for Low-Temperature Selective Catalytic Reduction of NO with NH3. Schill, Leonhard; Putluru, Siva Sankar Reddy; Jensen, Anker Degn; **Fehrmann, Rasmus**, *Catal. Lett.,* **2015**, *145*, 1724-1732.

169. Mechanistic insights into the oxidative dehydrogenation of amines to nitriles in continuous flow. Corker, Emily C.; Ruiz-Martínez, Javier; Riisager, Anders; **Fehrmann, Rasmus***, Catal. Sci. & Techn.,* **2015,** *5,* 5008-5015.

170. Effects of Coke Deposits on the Catalytic Performance of Large Zeolite H-ZSM-5 Crystals during Alcohol-to-Hydrocarbons Reactions as Investigated by a Combination of Optical Spectroscopy and Microscopy. Nordvang, Emily Catherine; Borodina, Elena; Ruiz-Martínez, Javier; **Fehrmann, Rasmus**; Weckhuysen, Bert M, *Chemistry: A European Journal*, **2015**, *21,* 17324-17335.

171. Promoted V2O5/TiO2 catalysts for selective catalytic reduction of NO with NH3 at low temperatures. Putluru, Siva Sankar Reddy; Schill, Leonhard; Godiksen, Anita; Poreddy, Raju; Mossin, Susanne; Jensen, Anker Degn; **Fehrmann, Rasmus**. *Applied Catalysis B: Environmental*, **2016**, *183,* 282-290.

172. *Absorption and oxidation of nitrogen oxide in ionic liquids. Kunov-Kruse, Andreas Jonas; Thomassen, Peter Langelund; Riisager, Anders; Mossin, Susanne; **Fehrmann, Rasmus**, *Chemistry: A European Journal*, **2016**, *22*, 11745-11755.

173. *Selective Reversible Absorption of the Industrial Off-Gas Components CO_2 and NO_x by Ionic Liquids. Kaas-Larsen, Peter Kjartan ; Thomassen, Peter ; Schill, Leonhard ; Mossin, Susanne , Riisager, Anders; **Fehrmann, Rasmus**, *ECS Trans*. **2016,** *75,* 3-16.

174. Ruthenium dioxide catalysts for the selective oxidation of benzylamine to benzonitrile: Investigating the effect of ruthenium loading on physical and catalytic properties. Nordvang, Emily C. ; Schill, Leonhard ; Riisager, Anders ; **Fehrmann, Rasmus**, *Topics in Catal*., **2017,** *in press.*

175. *Highly Selective Continuous Gas-Phase Methoxycarbonylation of Ethylene with Supported Ionic Liquid Phase (SILP) Catalysts. Khokarale, Santosh G.; Garcia-Suárez, Eduardo J.; **Fehrmann, Rasmus**; Riisager, Anders. *ChemCatChem.,* **2017**, *9*, 1824 – 1829.

176. Synthesis and characterization of iron-cobalt (FeCo) alloy nanoparticles supported on carbon. Koutsopoulos, Sotiris; Barfod, Rasmus; Eriksen, Kim Michael; **Fehrmann, Rasmus**. *Journal of Alloys and Compounds,* **2017**, *725*, 1210-1216.

Patents

1. A process for continuous carbonylation by supported ionic liquid-phase catalysis. A. Riisager and R. Fehrmann, *WO2006122563A1* (Wacker Chemie).

2. Procédés d´epuration des fumes issues de l´incinération ou de la combustion par voie catalytique. Frank Tabaries, Bernard Siret, Søren Birk Rasmussen, Rasmus Fehrmann. Filed by LAB(CNIM) November 2005. Journ.Nr. 0510773.

3. Alkali Resistant Catalyst.
S.B. Rasmussen, A. L. Kustov, R. Fehrmann, J. Due-Hansen, *WO2008037255* (DTU).

4. Nanoparticular metal oxide/anatase catalysts. R. Fehrmann, A. Riisager, S.B. Rasmussen, S.B. Kristensen and A.J. Kunov-Kruse, *WO2010055169A1* (DTU).

5. Vanadia-supported zeolites for SCR of NO by ammonia or urea. S.S.R. Putluru, A. Riisager and R. Fehrmann, *Patent application,* filed 4. May 2010 (DTU).

6. Palladium catalyst system comprising zwitterion and/or acid-functionalized ionic liquid. A. Riisager, R. Fehrmann, J. Xiong and E.J.G. Suárez, *WO2011026860* (DTU).

7. Supported biologically active liquids. R.D. Rogers, D.T. Daly, A. Riisager, R. Fehrmann, H. Rodríguez and K. Bica, *WO2011110662* (DTU, Univ. of Alabama).

8. Stability enhancement of supported salts. R.D. Rogers, D.T. Daly, A. Riisager, R. Fehrmann, H. Rodríguez and K. Bica, *Patent pending.*

9. NO sorption in ionic liquids. J. Due-Hansen, A. Riisager and R. Fehrmann, *Patent application EP10008722*, filed 24. June 2010 (DTU).

10. Zeolite SCR catalysts with iron or copper. S.S.R. Putluru, A. Riisager and R. Fehrmann, *Patent application,* filed 27. August 2010 (DTU).

11. Heteropoly acid promoted catalyst for SCR of NO_X with ammonia. S.S.R. Putluru, A. Riisager and R. Fehrmann, *WO2012028566* (DTU).

12. SO_2 sorption by supported ionic compounds. S. Kegnæs, A. Riisager and R. Fehrmann, *Patent application* DK 201000915,filed 8. Oktober 2010 (DTU).

13. Mordenite - Type Zeolite SCR Catalysts with Iron or Copper. S.S.R. Putluru, A. Riisager and R. Fehrmann, *WO2012025617* (DTU).

14. Absorption and oxidation of NO in ionic liquids. A. Riisager, A.J. Kunov-Kruse, S. Mossin, R. Fehrmann, *Patent application*, filed 29. November 2011 (DTU).

15. Verfahren zur befüllung eines reaktors mit einem katalysator. A. Riisager, C.W. Hanning, R. Fehrmann, A. Zipp, C. Rüdinger, *DE 10 2012 202 621.5*, filed 21. February 2012 (Wacker Chemie).

16. Katalysator zur carbonylierung carbonylierbarer verbindungen in der gasphase. A. Riisager, C.W. Hanning, R. Fehrmann, A. Zipp, C. Rüdinger, *DE 10 2012 202 622.3*, filed 21. February 2012.

17. CO_2 sorption by supported amino acid ionic liquids. H. Kolding, S. Shunmugavel, R. Fehrmann, A. Riisager, *WO2015107060A1 (DTU),* filed 2012 (DTU).

18. CO_2 chemisorption by functionalized amino acid derivatives. S. Shunmugavel, R. Fehrmann, A. Riisager, *Patent application*, filed 2012 (DTU).

19. An improved method of preparation of nanoparticular metal oxide catalysts. S.B. Kristensen, A.J. Kunov-Kruse, A. Riisager, R. Fehrmann, *WO2014170222A1*, filed 17. april 2013 (DTU).

20. Enhanched deNOx by combination of ionic liquid preoxidation catalyst and downstream SCR catalyst. R. Fehrmann, A. Riisager, *Patent application*, filled October 2013 (DTU). Updated: 27-09-2016 - 8 – 23.

21. Combined oxidation and absorption of NOx by an ionic liquid tandem process. R. Fehrmann, A. Riisager, S. Mossin, P. Thomassen, A.T. Madsen, A.J. Kunov-Kruse, *WO2015158849A1 (DTU),* filed

October 2013 (DTU).

22. Procede De Fabrication D'un Catalyseur De Denitrification, Ainsi Que Catalyseur De Denitrification Correspondant Et Procede De Denitrification Utilisant Un Tel Catalyseur. B. Siret, F. Tabaries, R. Fehrmann, L. Schill, S. S. R. Putluru, A. D. Jensen, *Patent application,* filed 21. December 2012 by LAB (CNIM), France, BFF 12 L0985.

23. A method for effective conversion of saccharides to furfural compounds. P. Malcho, J. Andersen, A.J. Kunov-Kruse, K. Ståhl, A. Riisager, R. Fehrmann, *WO2015004273A1 (DTU).*

24. Solution for the treatment of lung diseases via the gastrointestinal tract or others. S. Jockenhövel, C. Cornelissen, J. Spillner, R. Fehrmann, A. Riisager, J. Kok, *Patent application*, filed 2015 (RWTH, Aachen).

25. Methods for removing NOx from gases containing more than one gaseous component. R. Fehrmann, S. Mossin, P. Westergaard Jacobsen, *Patent application*, filed 7.September 2017 *(DTU).*

Books

25. Fehrmann, A. Riisager and M. Haumann (Eds.), *Supported Ionic Liquids – Fundamentals and Applications*, Wiley-VCH, Weinheim, **2014.**

Book chapters

26. Supported ionic liquid-phase (SILP) catalysis – Heterogenization of homogeneous rhodium phosphine catalysts. A. Riisager, R. Fehrmann, P. Wasserscheid and R. van Hal, in *Ionic Liquids IIIB: Fundamentals, Progress, Challenges, and Opportunities - Transformations and Processes* (Eds. R.D. Rogers, K.R. Seddon), ACS Symposium Series, Vol. 902, **2005**, Chapter 23, 334-349.

27. Supported ionic liquid phase catalysts. A. Riisager and R. Fehrmann, in *Ionic Liquids in Synthesis*, *Second Edition* (Eds. P. Wasserscheid, T. Welton), Wiley-VCH, Weinheim, **2007**, Chapter 5.6, 527-558

28. Supported liquid catalysts. A. Riisager, R. Fehrmann and P. Wasserscheid, in *Handbook of Heterogeneous Catalysis* (Eds. G. Ertl, H. Knözinger, J. Weitkamp), 2. ed., Wiley-VCH, Weinheim, **2008**, Chapter 2.4.11, 631-644.

29. Catalysis in Molten Ionic Media. S. Boghosian and R. Fehrmann, in *Molten Salts-From Lab to Applications* (Eds. F. Lanthelme, H. Groult), Elsevier, **2013**, Chapter 7, 131-152.