

COST D32

ALICANTE KICK-OFF MEETING

JULY 8, 2004

Session chair: U. Neis. Technical University of Hamburg-Harburg, Department of Sanitary and Environmental Engineering, Germany

D32/002/04: High-Energy Micro-Environments in Biotechnology

Coordinator: Andreas Tiehm, Water Technology Center, Karlsruhe, GER

Oral overview presentation: "High-Energy Micro-Environments in Biotechnology".

Speaker: Andreas Tiehm, Water Technology Center, Karlsruhe, GER

Poster presentations:

1. "Bio-electro-remediation of chloroethene polluted groundwater". A. Tiehm, S. Lohner. Water Technology Center, Karlsruhe, Germany
2. "Enzyme stability in liquid ultrasonic field". C. Basto, C.J. Silva, M. Schroeder, G. Guebitz, A. Cavaco-Paulo. University of Minho, Textile Engineering Department, Portugal
3. "Ultrasonic disintegration of biosludge and prevention of biological growth at surfaces". P.Pirkonen, A. Grönroos. VTT Processes, Separation Technology Group, Jyväskylä, Finland
4. "Integration between electrochemical and biochemical methods for treatment of industrial wastewater". L. Szpyrkowicz, M. Radaelli. University of Venice, Italy
5. "Combined processes for wastewater, sludge and soil depollution". N. Commenges-Bernole. Laboratoire d'Electrochimie et de Physicochimie des Materiaux et des Interfaces, Institut National Polytechnique de Grenoble, France
6. "Electrokinetic enhancement of biotransformation and the biodegradation of contaminants". S. Jackman. University of Oxford, FIRSTFARADAY, United Kingdom
7. "LC-MS method development for off-line and on-line reaction mechanistic investigations of ultrasound applications". A. Rehorek. University of Applied Sciences Cologne, Institute of Chemical Engineering and Plant Design, Germany
8. "The effect of sonication at different frequencies on microbial disinfection". H. Duckhouse, T.J. Mason, S.S. Phull, L. Paniwnyk, J.P. Lorimer. Coventry University, Sonochemistry Centre, United Kingdom
9. "Modification of enzymatic reaction kinetics by sonication of biomass". U. Neis. Technical University of Hamburg-Harburg, Department of Sanitary and Environmental Engineering, Germany
10. (not yet confirmed). F. Chemat. Laboratoire de Chimie des Substances Naturelles et des Sciences des Aliments, Université de La Reunion, France

D32/003/04 : Ultrasonic and Microwave Assisted Synthesis of Nanometric Particles

Coordinator: Cristina Leonelli, Modena, Italy

Oral overview presentation: "Using sonochemistry and microwave radiation for the preparation of nanomaterials"

Speaker: A. Gedanken (presenting author), Department of Chemistry, Bar-Ilan University, Ramat-Gan, Israel, 52900

Poster presentations:

1. "Microwave preparation of nanoparticles at Modena University". C. Leonelli (presenting author), S. Braccini, A. Corradi, P. Veronesi and G.C. Pellacani. Department of Materials and Environmental Engineering, University of Modena and Reggio Emilia, Via Vignolese 905, 41100 Modena, Italy
2. "Sol-gel Synthesis of Inorganic Oxide Nanoparticles in High-Energy Fields". J. Cihlar, Castkova (presenting author). Department of Ceramics and Polymers, Institute of Materials Engineering, Brno University of Technology, Brno, Technická 2, 616 69 Brno, Czech Republic
3. "Super fluid liquids and microwave irradiation for nanoparticle preparation". M.A. Morris. Department of Chemistry, University College Cork, Cork, Ireland
4. "Microwave-assisted Nanocatalysis". S. Fälsch, P. Scholz and B. Ondruschka (presenting author). Friedrich-Schiller-Universität Jena, Institut für Technische Chemie und Umweltchemie, Lessingstr.12, 07743 Jena, Germany
5. "Cold crucible technology – melting ceramics by induction heating". M. La Robina and S. Moricca. Australian Nuclear Science and Technology Organisation, New Illawarra Rd, Lucas Heights NSW, 2234
6. "Pressure and temperature sensitive paints: Opportunities for the use of dye-doped nanoparticles". U. Beifuss (presenting author), F. Döring, V. Ondrus and M. Tietze. Bioorganic Chemistry, Department of Chemistry, University of Hohenheim, Garbenstr. 30, D-70599 Stuttgart, Germany.
7. "Microwave Synthesis of Nanocrystalline Pr-Doped Zirconia Powders in High Pressure Hydrothermal Reactor". A. Opalinska (presenting autor), R. Pielaszek, E. Grzanka, E. Reszke, H. Matysiak, C. Leonelli and W. Lojkowski. High Pressure Research Centre, Polish Academy of Science, Sokolowska 29/37, 01-142 Warsaw, Poland.
8. "Fundamental mechanism of microwave induced trasformations in nanoscale systems". G. Whittaker. School of Chemistry, University of Edinburgh, West Mains Road, Edinburgh EH9 3JJ, Scotland, UK.
9. "Nanoparticles preparation at LACE". A.H. Kaddouri. LACE, CNRS-Université Lyon-1 UMR 5634, 43 Bd du 11 Novembre 1918, Batiment Chevreul, 1st floor, 69622 Villeurbanne Cedex, France.
10. "Hydrothermal microwave assisted syntheses of oxide nanoparticles". F. Martini (presenting author), G. Dottelli, C. Mazzocchia, G. Modica, M. Vimercati and D. Venegoni. Politecnico di Milano, Dipartimento di Chimica, Materiali e Ingegneria Chimica "Giulio Natta", Piazza Leonardo da Vinci 32, 20133 Milano, Italy

D32/004/04: Electrochemistry with Ultrasound

Coordinator: Jose Gonzalez-Garcia, Alicante, Spain

Oral overview presentation: "Electrochemistry with ultrasound".

Speaker: David Walton, Coventry University

Poster presentations:

1. "Sonochemistry: Fundamentals and applied studies". J. Gonzalez-Garcia, Alicante, Spain
2. "Use of power ultrasound in sonochemistry. Hydrodynamics and mass transfer measurements for applications in surface treatment". J.Y. Hihn, M.L. Doche, F. Touyeras, M. Rebetz, R. Viennet, A. Mandroyan and L. Hallez, Besancon, France
3. "Electrochemistry in the nanosecond time scale ". E. Maisonhaute, Paris, France
4. "Sonochemistry in Prague". J. Klíma, Prague, Czech Republic
5. "Ammonia oxidation of Pt electrodes: From single crystals to nanoparticles". J. Solla, F. Vidal; J. Feliu and A. Aldaz, Alicante, Spain.

D32/005/04: Microwaves and Ultrasound Activation in Chemical Analysis

Coordinator: Antonio Canals, Alicante, Spain

Oral overview presentation: "Ultrasound and microwave activation in Analytical Chemistry"

Speaker: Frank Marken, Loughborough, UK

Poster presentations:

1. "Ultrasound and microwave activation in Analytical Chemistry at the University of Alicante". C.E. Domini, L.Vidal, N. Kovachev, V. Stefanova, D. Georgieva, V. Kmetov and A. Canals, Alicante, Spain
2. "Ultrasonic oxidation of organomercurials: Analytical applications". C. Bendicho, Vigo, Spain
3. "Applications of microwave energy in the field of analytical extraction of priority pollutants from environmental samples". M. Llompert and R. Cela, Santiago de Compostela, Spain
4. "An ultrasound accelerated sequential extraction method and its application for metal partitioning studies in the composting process". G. Greenway, Hull, UK
5. "Application of ultrasound in the catalytic oxidation and in measuring equipments". J. Hofmann, Leipzig, Germany
6. "Strategies towards enhanced performance of electrochemical detection for miniaturized separation systems". F.M. Matysik, Leipzig, Germany
7. "Monitoring the sonochemical degradation of organic micropollutants in water using solid and liquid microextraction techniques". E. Psillakis, Chania-Crete, Greece
8. "Microelectrode Electrochemistry in the Presence of Microwaves". U.K. Sur, F. Marken, B.A. Coles, R. G. Compton. Department of Chemistry, Loughborough University,

Leicestershire, LE11 3TU, UK; Physical & Theoretical Chemistry Laboratory, Oxford University, Oxford, OX1 3QZ, UK

D32/006/04: Microwave and High Intensity Ultrasound in the Synthesis of Fine Chemicals

Coordinator: Giancarlo Cravotto, Torino, Italy

Oral overview presentation: "Microwave and high-intensity ultrasound in the synthesis of fine chemicals. The case of cholic acid derivatives".

Speaker: Giancarlo Cravotto, Torino, Italy

Poster presentations:

1. "Ultrasound and hydrophobic interactions". A. Tuulmets, S. Salmar and H. Hagu, Tartu, Estonia
2. "Ultrasound assisted reduction of nitroaromatic molecules of high steric demand". G.A. Heropoulos, B.R. Steele, I.D. Kostas, S. Georgakopoulos, M. Micha-Screttas and C.G. Screttas. National Hellenic Research Foundation, Institute of Organic and Pharmaceutical Chemistry, Vas. Constantinou 48, Gr-116 35 Athens, Greece

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Session chair: Dr. D. Caruana

D32/007/04: Cavitation and Environmental Remediation (CAVEMEN)

Coordinator: David Bremner, Abertay, Dundee, UK

Oral overview presentation: "CAVEMEN-Cavitation and environmental remediation"

Speaker: David Bremner, Abertay, Dundee, UK

Poster presentations:

1. "Ultrasonic degradation of organics in water". D. Bremner, Abertay, Dundee, UK

D32/008/04: Development and Design of Reactors for Microwave-Assisted Chemistry in Lab and Pilot Scale

Coordinator: Matthias Nüchter, Jena, Germany

Oral overview presentation: "Development and design of reactors for microwave-assisted chemistry in lab and pilot scale-Presentation of the working group".

Speaker: Matthias Nüchter, Jena, Germany

Poster presentations:

1. "Chemical process intensification by dielectric hysteresis heating : Reflections on the design of micro-meso scale plug flow reactors". L Estel, Mont-Saint-Aignan, Rouen, France
2. "Microwave assisted chemistry at the University of Hull". G. Greenway and S. Haswell, Hull, UK
3. "Photochemistry in the microwave field". P. Müller, J. Literak, V. Cirkva and P. Klan, Brno, Czech Republic
4. "Scale-up and numbering-up of microwave assisted reactions and processes: Part I and Part II". M. Nüchter, B. Ondruschka and W. Bonrath, Basel, Switzerland

D32/009/04: Fundamentals in Cavitation, Sonochemistry and Sonoluminescence

Coordinator: Thierry Lepoint, Institute Meurice, Brussels, Belgium

Oral overview presentation: "Sonoluminescence: Combustion reactions and chemiluminescent mechanisms".

Speaker: Thierry Lepoint, Institute Meurice, Brussels, Belgium

Poster presentations:

1. "Bubble structures in traveling waves". B. Dubus, Lille, France
2. "Acoustic cavitation bubble structures" and "Molecular dynamics simulation of a collapsing bubble". W. Lauterborn, Göttingen, Germany

D32/010/04: Diversity oriented synthesis under (highly efficient) microwave conditions

Co-ordinator: Dariusz Bogdal, Krakow, Poland

Oral overview presentation: "Diversity oriented synthesis under (highly efficient) microwave conditions". Speaker: Dariusz Bogdal and Romano V. A. Orru

Poster presentations:

1. "Activities of the Laboratoire des Réactions Sélectives sur Supports from Paris-South University". A. Loupy
2. "Microwaves in Intramolecular 1,3-dipolar Cycloaddition". M. Potacek and J. Pospisil
3. "The application of "click chemistry" on 2(1h)-pyrazinones". E. Van der Eycken
4. "Microwave assisted multi-component reactions for parallel synthesis of libraries of N-heterocycles". R.V.A. Orru, E. Gelens, L. Smeets, M. Groen, R. Leurs, L. Sliedregt and B. van Steen.

5. "Rapid Scaffold Decoration of Dihydropyrimidine Derivatives by Microwave-Assisted Solution Phase Synthesis". D. Dallinger, A. Lengar, B. Khanetskyy, B. Desai and C.O. Kappe
6. "Application of microwave irradiation to rapid transformations of organic compounds and macromolecules". D Bogdal, J. Pielichowski, J. Gorczyk, S. Bednarz, M. Pajda, I. Stepien, E. Wolff and A. Burczyk
7. "The Baylis-Hillman reaction under microreactor conditions". D. Acke and C.V. Stevens
8. "Microwave accelerated reactions on aromatic compounds". E. Veverkova, M. Meciarova, V. Polackova and S. Toma. Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia.