



GCNPM 2018

9th Conference

Green Chemistry and Nanotechnologies in Polymeric Materials

10-12 October 2018

Cracow, Hotel Qubus

Organized by:

**Cracow University of Technology
Faculty of Chemical Engineering and Technology**



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Wednesday, 10.10.2018

17.00 - 20.00 Registration

19.00 - 21.00 Welcome Reception

Thursday, 11.10.2018

8.30 - 13.00 Registration

9.00 - 9.15 Conference Opening

I Session - Chairmen: Salvatore Iannace and Dariusz Bogdał

9.15 **Keynote Lecture:** Ali Rizvi, Adel Ramezani Kakroodi, **Chul B. Park:** *Nanofibril technology for enhancing the mechanical properties and foaming ability*

9.50 **Tamara Calvo-Correas,** O. Echeverria, M. Angeles Corcuera, Arantxa Eceiza: *Impact of the combined use of magnetite nanoparticles and cellulose nanocrystals on shape-memory behaviour of polyurethane bionanocomposites*

10.15 **Jana Kredatusová,** Hynek Beneš, Sébastien Livi, Petra Ecorchard, Magdalena Konefał, Ewa Pavlova: *Poly(butylene adipate-co-terephthalate)/layered double hydroxide nanocomposites via in-situ polycondensation*

10.35 **Jolanta Pulit-Prociak,** Anita Staroń, Paweł Staroń, Jarosław Chwastowski, Sławomir Michałowski, Elżbieta Sikora, Marcin Banach: *Preparation of utility composites with the addition of silver nanoparticles*

10.55 - 11.25 Coffee break

II Session - Chairmen: Leonard Szczepkowski and Aleksander Prociak

The session dedicated to prof. Jan Pielichowski

11.25 **Keynote Lecture:** **Tomasz Sterzyński:** *Highly resistant thermoplastic composites with natural fibers; ecological aspects*

12.00 **Dariusz Bogdał:** *Intensification of oxidation and epoxidation reactions – microwave vs. conventional heating*

12.25 **Paweł Chmielarz,** Piotr Król: *Synthesis of well-defined polymers by atom transfer radical polymerization*

12.45 **Anna Sienkiewicz,** Piotr Czub, Karolina Pach: *Studies on the enzymatic degradation of epoxy-polyurethane materials based on modified vegetable oils*

13.05 **Katarzyna Bialik-Wąs,** Anna Ledwoń, Paweł Obrok, Rafał Bogucki: *Influence of different crosslinking methods on the properties of modified alginate hydrogels*

13.25 - 15.00 Lunch

III Session - Chairmen: Chul B. Park and Krzysztof Pielichowski

15.00 **Andrea Lazzeri,** Maria Kurańska, Aleksander Prociak, Andres Torres Nicolini, Ilaria Canesi, Patrizia Cinelli, Doriana Morganti: *Epoxidised used cooking oil as a reactive plasticizer for PLA*

15.25 **Isabel P. Fernandes,** Hélder M. Rafael, Albano M. Fernandes, Bernardo Nunes, Vera V. Pinto, Maria J. Ferreira, Maria Filomena Barreiro: *Development of new footwear materials within the Extralight Safe Shoe project*

15.50 **Dawid Stawski,** Stefan Połowiński, Izabella Krucińska, Zbigniew Draczyński, Lucyna Herczyńska: *Poly lactide and its copolymers as a green alternative for synthetic polymers*

16.10 [Mateusz Barczewski](#), Kamila Sałasińska, Arkadiusz Kloziński, Katarzyna Skórczewska, Joanna Szulc, Adam Piasecki: *Basalt powder as a waste filler for thermoplastic composites with improved thermo-mechanical stability and reduced flammability*

16.30 [Joanna Wojturska](#): *Bio-based solvent-free polyurethane adhesives*

16.50 - 17.10 *Coffee break*

17.10 - 18.00 Poster Session Chairmen: Andrea Lazzeri and Tomasz Sterzyński

20.00 - 24.00 *Social dinner*

Friday, 12.10.2018

IV Session - Chairmen: Arantxa Eceiza and Ugis Cabulis

9.00 **Keynote Lecture: [Salvatore Iannace](#)**, Maria Oliviero, Luigi Sorrentino, Andrea Sorrentino: *CO₂ foaming of polymers deriving from sustainable feedstocks*

9.35 [Paweł Parzuchowski](#): *Synthesis and characterization of hyperbranched polyglycerols containing amine groups for CO₂ capture*

10.00 [Mikelis Kirpluks](#), Edgars Vanags, Arnis Abolins, Anda Fridrihsone, Ugis Cabulis: *Chemo-enzymatic oxidation of tall oil fatty acids as a precursor for polyol production*

10.20 Magdalena Kwiatkowska, [Inez Kowalczyk](#): *Crystalline structure and performance of bio-based furan-ester copolymers of poly(butylene furanoate) (PBF) and poly(ethylene glycol) (PEG)*

10.40 [Danuta Matykiewicz](#), Mateusz Barczewski: *Basalt fiber as an eco-friendly reinforcement of hybrid epoxy composites*

11.00 - 11.20 *Coffee break*

V Session - Chairmen: Filomena Barreiro and Jose Roberto Vega Baudrit

11.20 [Ugis Cabulis](#), Mikelis Kirpluks, Aiga Ivdre, Anda Fridrihsone: *Polyurethane foams obtained from the Northern Europe feedstock*

11.45 Sandra Gómez-Fernández, Lorena Ugarte, Tamara Calvo-Correas, M. Angeles Corcuera, [Arantxa Eceiza](#): *Synergic effect of lignin, layered double hydroxides and phosphorus containing polyol on fire performance of polyurethane foams*

12.10 [Paulina Kasprzyk](#), Janusz Datta: *Characterization of bio-based thermoplastic polyurethanes synthesized with monomers derived from renewable resources*

12.30 [Jacek Andrzejewski](#), Mateusz Barczewski, Marek Szostak: *Injection overmolding technique as a method for preparation of long-fiber reinforced composites*

12.50 [Artur Bukowczan](#), Edyta Hebda, Krzysztof Pielichowski: *Preparation and characterization of PU-POSS hybrid scaffolds*

13.10 *Final discussion and conference closing*

13.20 *Lunch*

Poster presentations

- P1. K. Polaczek, M. Auguścik, M. Kurańska, A. Prociak, J. Ryszkowska: ***Open cell rigid polyurethane foams based on bio-polyols***
- P2. M. Auguścik, J. Ryszkowska, L. Szczepkowski: ***Biocomposites of viscoelastic foams with mint***
- P3. M. Barczewski, K. Biedrzycka, J. Aniśko, A. Kloziński, D. Matykiewicz, J. Andrzejewski, O. Mysiukiewicz, M. Szostak: ***The effect of UV light on mechanical properties and structure of polyurea spray coated composites filled with different inorganic fillers***
- P4. K. Bialik-Was, K. Żyła, K. Pluta, D. Malina, K. Pielichowski: ***Determination of the encapsulation efficiency of model drug into PHAs nanocarriers***
- P5. M. Borowicz, J. Paciorek-Sadowska, B. Czapryński, J. Liszkowska: ***Synthesis and application of new bio-polyol based on Oenothera biennis oil. Part 1. Synthesis of bio-polyol***
- P6. J. Paciorek-Sadowska, M. Borowicz, B. Czapryński, J. Liszkowska: ***Synthesis and application of new bio-polyol based on Oenothera biennis oil. Part 2. Synthesis of rigid polyurethane-polyisocyanurate foams based on new bio-polyol***
- P7. S. Bujok, H. Beneš, J. Kredatusová, M. Konefał, E. Pavlova, P. Ecorchard: ***Functionalization of layered double hydroxide for in-situ ring opening polymerization***
- P8. K. González, L. Iturriaga, T. Calvo-Correas, A. González, A. Eceiza, N. Gabilondo: ***Strategies for improving the behaviour of extruded starch based films***
- P9. G. Arner, O. Guaresti, L. Urbina, A. Retegi, T. Calvo-Correas, A. Eceiza, N. Gabilondo: ***Biosynthesis of bacterial cellulose/chitosan/alginate hybrid particles***
- P10. M. Celiński, K. Sałasińska: ***Flammability of polyols***
- P11. A. Santamaria-Echart, I. Fernandes, M.F. Barreiro, T. Calvo-Correas, M.A. Corcuera, A. Eceiza: ***Water-borne polyurethane-ureas added with plant extracts with bacteriostatic characteristics***
- P12. J. Vadillo, I. Larraza, A. Arbelaiz, M. Ángeles Corcuera, C. Save M., Derail, A. Eceiza: ***Effect of PCL/PEG ratio on the properties of waterborne poly-urethane-urea dispersions***
- P13. M.R. Helder, I.P. Fernandes, B. Nunes, V.V. Pinto, M. J. Ferreira, M.F. Barreiro: ***Cork-based composites: studies on binder replacement and incorporation of biomass-derived additives***
- P14. E. Hebda, A. Bukowczan, K. Pielichowski: ***Polyurethane scaffolds containing POSS nanoparticles***

- P15. P. Kasprzyk, J. Datta: ***A mathematical model of rheological behavior of partially bio-based polyurethane prepolymers***
- P16. B. Król, ***Influence of the type nanofillers on the surface, thermal and mechanical properties of coatings made from polyurethanes and polyurethane cationomers***
- P17. K. Skórczewska, K. Lewandowski, M. Kurańska: ***Epoxidized vegetable oils as poly(vinyl chloride) glass transition modifier***
- P18. R. Lubczak, D. Szczęch, D. Broda, A. Szymańska, R. Wojnarowska-Nowak, M. Kusliśkiewicz, : ***Biodegradation of polyurethane foams with carbazole ring***
- P19. R. Lubczak, D. Szczęch, M. Szpiłyk: ***Polyurethane foams with starch units***
- P20. D. Malina, D. Totoń, A. Sobczak-Kupiec: ***Phytotoxicity of silver in ionic and nanometric form***
- P21. D. Malina, A. Sobczak-Kupiec, W. Florkiewicz: ***Plant waste as raw materials in nanosilver preparation***
- P22. S. Michałowski, A. Czernecka, M. Kurańska, A. Prociak: ***Rigid polyurethane foams with reduced flammability***
- P23. K. Mizera, J. Ryszkowska, M. Kurańska, A. Prociak: ***Analysis of the influence of epoxidized rapeseed oil modified with diethylene glycol and isopropanol on the structure and properties of polyurethane elastomers***
- P24. O. Mysiukiewicz, D. Matykiewicz, M. Barczewski: ***Biodegradable hybrid composites of poly(vinyl alcohol) reinforced with natural fibers and ground chestnut shells***
- P25. J.A. Pinto, M.N. Belgacem, A.E. Rodrigues, M.F. Barreiro: ***Development of silica-rich polyols from rice husk biomass***
- P26. K. Pluta, A. Sobczak-Kupiec, K. Rudnicka: ***Cytotoxicity assessment of polymer-ceramic composite of natural origin***
- P27. K. Pluta, D. Malina, A. Sobczak-Kupiec: ***Nanogold as drug carrier***
- P28. S. Reinerte, M. Kirpljuks, U. Cābulis: ***Thermogravimetric analysis of high functionality tall oil polyol based rigid PU foams***
- P29. J. Ryszkowska, M. Auguścik, M. Oleksy, R. Oliwa, T. Markowski, L. Szczepkowski, Ł. Molter: ***Sound-absorbing viscoelastic polyurethane foams made from polyols obtained from PET recycling***
- P30. K. Sałasińska, M. Celiński, M. Barczewski: ***The influence of shell on the flammability and smoke emission of epoxy resin***
- P31. P. Czub, A. Sienkiewicz, A. Milo: ***Epoxy-polyurethane materials based on modified palm oil***

- P32. P. Czub, A. Sienkiewicz, K. Kulpa: *Studies on the synthesis and properties of polymeric materials based on modified vegetable oil and sepiolite as nanofiller*
- P33. M. Musioł, W. Sikorska, J. Rydz, S. Jurczyk, M. Sobota, I. Radecka, M. Klim: *Organic recycling of composites designed for food-packaging applications. Testing for antimicrobial activity*
- P34. K. Skórczewska, K. Lewandowski, A. Wiśniewska, E. Domagała, K. Piszczek: *Selected properties of poly (vinyl chloride) with plasticizer of natural origin*
- P35. A. Sobczak-Kupiec, D. Malina, W. Florkiewicz: *Nanosilver preparation with the use of *Cynara scolymus**
- P36. A. Sobczak-Kupiec, D. Malina: *New drug delivery systems*
- P37. A. Drabczyk, S. Kudłacik-Kramarczyk, M. Głąb, B. Tylińczak: *Hybrid nanoparticles as potential drug carriers*
- P38. S. Kudłacik-Kramarczyk, A. Drabczyk, M. Głąb, B. Tylińczak: *Studies on the geometric structure of hybrid hydrogel materials*
- P39. K. Uram, K. Polaczek, M. Kurańska, A. Prociak: *Epoxidized oils and polyols based on used cooking oils*
- P40. D. Głowacz-Czerwonka, J. Wojturska: *Polyurethane foams with reduced flammability - preliminary tests of biodegradation*
- P41. D. Głowacz-Czerwonka, J. Wojturska: *Preliminary tests of the biodegradation of selected polyurethane foams with reduced flammability - continuation of research*
- P42. J. R. Vega-Baudrit: *Biorefinery of pineapple wastes in Costa Rica*
- P43. A. Żaba, E.M. Nowak, P. Dąbczyński, J. Rysz, K. Matras-Postołek: *Photovoltaic devices ZnS/P3HT with improved efficiency*