

Preliminary Program

ECO-MOBILITY

Innovative systems, constructions and advanced material technologies



23-26 September 2013, Rzeszów, Krasiczyn, Łańcut

CONFERENCE ORGANIZED UNDER THE PATRONAGE OF:

**DEPUTY PRIME MINISTER, MINISTER OF THE ECONOMY
PRESIDENT OF WARSAW UNIVERSITY OF TECHNOLOGY
TRANSPORT COMMITTEE OF THE POLISH ACADEMY OF
SCIENCES**

And

THE MAYOR OF RZESZÓW

Organizers:

1. Warsaw University of Technology: POIG Project ECO-Mobility, Faculties of Transport, Mechatronics, Electric Engineering, Electronics and Information Technology
2. Transport Committee of the Polish Academy of Sciences
3. Polish – Chinese Center for Dialogue of Scientists and Engineers
4. Chinese Academy of Engineering
5. Rzeszów City Hall

The following institutions will be represented during the conference:

1. Warsaw University of Technology,
2. Polish Academy of Sciences, 3. Rzeszów University of Technology,
4. Poznań University of Technology, 5. Kraków University of Technology,
6. Medical University of Warsaw, 7. University of Technology and Humanities in Radom,
8. Institute of Sports Science and Clinical Biomechanics, University of Southern Denmark, Odense, Denmark,
9. University of Physical Education in Warsaw, 10. Motor Transport Institute, 11. Chinese Academy of Engineering, 12. National Key Laboratory of Remanufacturing, China 13. ATRA Industry Group, 14. Ultra Global PRT. 15. SwiftTram, Inc, 16. Kontron Poland, 16. Vectus Ltd.

THE HONORARY CONFERENCE COMMITTEE:

**Prof. Władysław Włosiński PhD., Eng. (Chairman of the Honorary Committee),
Prof. Jan Szmidt PhD., Eng. (President of Warsaw University of Technology),
Prof. Marek Orkisz PhD., Eng. (President of Rzeszów University of Technology),
Prof. Andrzej Mastalerz PhD., Eng. (President of University of Physical Education in Warsaw), Prof. Zbigniew Łukasik PhD., Eng. (President of University of Technology and Humanities in Radom), Prof. Xu Binshi (Chinese Academy of Engineering), Prof. Zhu Sheng (Director of National Key Laboratory for Remanufacturing, China)**

SCIENTIFIC COMMITTEE:

1. **Prof. Włodzimierz Choromański, PhD., Eng.**
(Chairman of the Conference, Warsaw University of Technology, Leader of the ECO-Mobility Project),
2. **Prof. Iwona Grabarek PhD., Eng.** (Warsaw University of Technology, Faculty of Transport),
3. **Prof. Janusz Dyduch PhD., Eng.** (Chairman of the Transport Committee of the Polish Academy of Sciences),
4. **Prof. Danuta Jasińska-Choromańska, PhD, Eng.** (Warsaw University of Technology),
5. **Prof. Lech Grzesiak PhD., Eng.** (Warsaw University of Technology, Dean of the Electric Engineering Faculty)
6. **Prof. Grzegorz Kamiński PhD., Eng.** (Warsaw University of Technology),

7. Prof. Jarosław Deszczyński M.D., PhD. (Medical University of Warsaw)
8. Prof. Karen Søgaard PhD. (Institute of Sports Science and Clinical Biomechanics, University of Southern Denmark, Denmark),
9. Andrzej Wojciechowski PhD. (Director of Motor Transport Institute),
10. Prof. Andrzej Rudnicki PhD., Eng. (Kraków University of Technology),
11. Adam Szewczyk MSc (Polish Association of Home Builders),
12. Prof. Andrzej Gałęski PhD. (Head of Polymer Physics Department, Center of Molecular and Macromolecular Research of the Polish Academy of Sciences),
13. Prof. Wojciech Wawrzyński PhD., Eng. (Dean of the Transport Faculty of Warsaw University of Technology)
14. Prof. Ingmar Andréasson PhD. (ATRA Industry Group)
15. Prof. Martin Lowson (ULTRA)
16. Fraser Brown (ULTRA Managing Director)
17. David Holdcroft (Director of ATRA Europe, ATRA Industry Group)
18. Maciej Kozłowski PhD, Eng. (Warsaw University of Technology, Faculty of Transport)
19. Martin Pemberton, (Vectus Ltd.)

Conference Program

Day 0 - 23.09.2013

Arrival of Conference Guests

Day I - 24.09.2013

8³⁰ Opening of the Conference

9⁰⁰-11⁰⁰

Innovative systems, constructions and advanced material technologies

Moderator: Prof. W. Włosiński, Prof. Xu Binshi, Prof. W. Choromański,

1. **Contemporary challenges in ECO mobility. Opportunities of Polish Science. Importance of international cooperation** (*introductory lecture: Władysław Włosiński, Włodzimierz Choromański, Xu Binshi*)

- 2. Remanufacturing and recycling as an element of low-resource-consuming economy in automotive industry** (*Xu Binshi, Zhu Sheng*)
- 3. The Heathrow PRT System** (*M.V. Lowson, Fraser Brown, David Holdcroft*)
- 4. Man as the subject in designing technical mobility systems**
(*Iwona Grabarek*)

Break

12⁰⁰-13⁴⁵

Personal Mobility

**Moderator: Prof. Karen Søgaard, Prof. Danuta Jasińska Choromańska,
Prof. Andrzej Mastalerz,**

- 1. Polish and foreign technical gait-aiding solutions for disabled people**
(*Danuta Jasinska-Choromańska*)
- 2. The use of biofeedback and EMG in rehabilitation and design for prevention of musculoskeletal disorders** (*Karen Søgaard*)
- 3. Issues regarding disabled people transport – wheelchairs of the new generation** (*Grzegorz Dobrzyński, Włodzimierz Choromański, Krzysztof Fiok*)
- 4. Innovative manual wheelchair** (*Krzysztof Fiok, Anna Mróz, Andrzej Mastalerz, Włodzimierz Choromański*)

Lunch break

16⁰⁰-17⁰⁰

Personal Rapid Transit (I), Eco Car

Moderator: Prof. Włodzimierz Choromański, Fraser Brown

- 1. PRT – utopia or revolution? Polish PRT System** (*W. Choromański, G. Kamiński, B. Kamiński, J. Kowara, M. Maciejewski*)
- 2. ECO car – new concept of an urban electric car** (*W. Choromański, L. Grzesiak, J. Szczypior, B. Ufnalski, I. Grabarek, M.Kozłowski*)

17¹⁵-17³⁰

Medicine and Mobility

Moderator: Prof. Iwona Grabarek, Prof.J.Deszczyński

- 1. Expectations regarding technical orthopedic devices designed for fracture treatment and restoring mobility. Polish orthopedic stabilizers and endoprosthesis – polish school?** (*J. Deszczyński, W. Choromański*)

19⁴⁵

SUPPER

(for the supper semi-casual dress code is advised)

DAY II – 25.09.2013

9⁰⁰-10⁰⁰

Advanced Material Technologies:

Moderator: Prof. Władysław Włosiński, Prof. Xu Binshi, Prof. Zhu Sheng

- 1. New polymeric materials in automotive engineering** (*Andrzej Gałęski*)
- 2. New possibilities of the obtaining hydroxyapatite coats on implants** (*Wojciech Żórawski*)

11¹⁵-13⁰⁰

POSTER SESSION

Moderator: Prof. Lech Grzesiak, Prof. Danuta Jasińska-Choromańska, Prof. Iwona Grabarek, Prof. Włodzimierz Choromański, Prof. Grzegorz Kamiński

- 1. A concept of propulsion and power supply systems for PRT vehicles** (*Bartłomiej Kamiński, Marcin Nikoniuk, Łukasz Drażikowski*)
- 2. An experimental study on the powertrain with a hybrid energy source for an urban electric vehicle** (*Lech M. Grzesiak, Bartłomiej Ufnalski, Arkadiusz Kaszewski, Marek Michalczuk, Piotr Rumniak, Andrzej Gałęcki, Piotr Biernat*)
- 3. Effect of user's individual features on energy consumption of orthotic robot** (*Karol Bagiński*)
- 4. Linear asynchrone motors for PRT drive** (*Adam Biernat, Grzegorz Kamiński, Emil Kupiec, Włodzimierz Przyborowski, Adam Rogalski, Paweł Staszewski*)
- 5. Matching of orthotic robot kinematics, realization of gait for handicapped people** (*Ksawery Szykiedans, Wojciech Credo, Danuta Jasińska-Choromańska*)

6. **Mechatronic simulator of lever driven wheelchairs** (*Krzysztof Fiok, Włodzimierz Choromański, Andrzej Potyński, Grzegorz Dobrzyński*)
7. **Project, design and tests of in-wheel outer-rotor PMSM motor for electric car application** (*Jan Szczypior, Rafał Jakubowski, Adam Biernat, Mateusz Rzeszowski*)
8. **Proposed benchmark networks for PRT traffic simulation** (*Jerzy Mieścicki, Wiktor B. Daszczuk*)
9. **Safety in the system of verticalization and aiding motion of the disabled** (*Marcin Matyjewicz- Maciejewicz, Danuta Jasińska- Choromańska, Błażej Kabziński, Dariusz Kołodziej*)
10. **Simulation studies of PRT vehicle** (*Maciej Kozłowski, Włodzimierz Choromański*)
11. **Simulation studies of the ECO-Car handling characteristics** (*Maciej Kozłowski, Włodzimierz Choromański*)
12. **Sustainable Transport for Rzeszów city** (*Wiktor B. Daszczuk, Waldemar Grabski*)
13. **Analysis of the wheelchair ride comfort during stairs climbing** (*Grzegorz Dobrzyński, Włodzimierz Choromański,*)
14. **Personal Rapid Transit: design and prototype** (*Jerzy Kowara, Włodzimierz Choromański,*)
15. **Personal Rapid Transit: simulations and laboratory tests** (*Włodzimierz Choromański, Jerzy Kowara*)

15⁰⁰-16⁴⁵

PRT (II), Monorail

Moderator: Director Fraser Brown, Prof. Ingmar Andréasson,

1. **The Track to Suncheon: Making APMs Intelligent** (*Martin Pemberton*)
2. **PRT – History and Future** (*Fraser Brown*)
3. **Light Monorail** (*Bartholet Maschinenbau AG*)
4. **INNOVIA Monorail** (*Bombardier*)
5. **PRT as a complement to other transit modes** (*Ingmar Andréasson*)

17³⁰-18⁰⁰

ROUND TABLE

Joint Projects regarding ECO-Mobility

Moderator: Prof. Władysław Włosiński, Prof. Włodzimierz Choromański

19³⁰

GALA DINNER (Łańcut Castle)

(for the Gala Dinner informal dress code is advised)



DAY III – 26.09.2013

11⁰⁰-12³⁰

Welcome address by the Mayor of Rzeszów Tadeusz Ferenc

- 1. Expectations of Polish cities to innovative transport on the example of Rzeszów** (*Mayor of Rzeszów Tadeusz Ferenc, Zbigniew Rudnicki*)
- 2. Incubator of new technologies. The new concept. Proposal of an Euro-American-Chinese incubator for new technologies in the field of ECO-Mobility** (*Włodzimierz Choromański, Władysław Włosiński*)
- 3. Announcement of an Initiative for constructing new transport technologies in the city of Rzeszów**

Lunch break

15⁰⁰-16³⁰

Bus tour of the city of Rzeszów

The Organizing Committee:

- 1) *Prof. Iwona Grabarek PhD., Eng. (chairwoman)*
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Place of Conference:

Bristol Tradition and Luxury Hotel

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