

The 10th IIST International Colloquium

State-of-the-art advancements in the field of Integrated mechano-electrical Technology

May 1st, 2018

Objective: To facilitate international academic exchanges between Poland and Japan on recent research developments in the integrated field of Mechanical and Electrical Engineering

Venue: Koganei Campus, Hosei University, 3-7-2 Kajino-cho, Koganei City, 184-8584 Tokyo

<http://www.hosei.ac.jp/english/about/map/access/>

Oral Presentation: Room W1002 (1st floor, West Building)

<http://www.hosei.ac.jp/english/about/map/campus/koganei/>

Reception and Poster Presentation: The free area on the 1st floor of West Building

Program

12:50 – 13:00	Prof. Kazuo Yana (Hosei University), “Opening Remarks”
13:00 – 13:20	Prof. Shinji Wakao (Waseda University), “On Value Enhancement Technologies in Photovoltaic Power Generation Systems”, *tentative
13:20 – 13:40	Prof. Yoshifumi Okamoto (Hosei University), “Design Optimization of Electrical Machines Using Topology Optimization Method Combined with Electromagnetic Field Analysis”
13:40 – 14:00	Prof. Sousuke Nakamura (Hosei University), “Robotics System”
14:00 – 14:10	Intermission
14:10 – 14:40	Brief Introduction of Poster Session (Group A)
14:40 – 15:40	Poster Session (Group A)
15:40 – 15:50	Intermission
15:50 – 16:10	Prof. Mirosław Wendeker, “Use of Electric Machines to Recuperate Mechanical Energy in the Urban Bus”
16:10 – 16:30	Prof. Piotr Kacejko, “Optimal Control of Wind Farm Group Using the Windex System and External Computing Modules”
16:30 – 17:00	Brief Introduction of Poster Session (Group B)
17:00 – 18:00	Poster Session (Group B)
18:00 – 18:10	Closing Ceremony
18:15 – 19:45	Banquet

Poster Session

Group A

- A-1** Łukasz Grabowski, “The Electric Power Generation Efficiency in Vehicles”
- A-2** Satoshi Namiki, and Yoshifumi Okamoto (Hosei University), “Evaluation of Temperature Distribution Using Eddy Current-Thermal Fluid Coupled Analysis in Induction Heating Model”
- A-3** Grzegorz Barański, “The efficiency of the vehicle recuperative system transducer”
- A-4** Makoto Kumagai, and Yoshifumi Okamoto (Hosei University), “Performance Evaluation of Preconditioned Krylov Subspace Methods with Eisenstat's Technique for Nonsymmetric Linear System Derived from Time Periodic Finite Element Method”
- A-5** Michał Gęca, “Long-term data analysis of solar radiation from steady and moving objects”
- A-6** Shimpei Kakita, and Yoshifumi Okamoto (Hosei University), “Nonlinear Eddy-Current Analysis Using Time-Periodic Finite Element Method”
- A-7** Adam Majczak, “Simulation tests of the combustion process in the Wankel engine”
- A-8** Hiroyuki Sawada, Hiroshi Masuda, Yoshifumi Okamoto (Hosei University), and Shinji Wakao (Waseda University), “Fundamental Study on Coupled Topology Optimization between Electromagnetic and Mechanical Analysis”
- A-9** Marcin Szlachetka, “The comparative research on the occurrence of the fuel film phenomenon in petrol and ethanol fuelled engines”
- A-10** Narichika Nakamura, and Yoshifumi Okamoto (Hosei University), “On Diagnosis Method of Distribution of Magnetization Vector in Permanent Magnet Using Nonlinear Optimization Method”
- A-11** Rafał Sochaczewski, “Experimental investigation of a diesel engine fueled by directly injected natural gas”
- A-12** Yuta Nakayama, and Yoshifumi Okamoto (Hosei University), “Study on Automatic Generation Method of Finite Element Meshes Using Bubble Mesh Technique”
- A-13** Unfixed, probably poster 1 from Sousuke Nakamura Lab., Hosei Univ.
- A-14** Unfixed, probably poster 2 from Sousuke Nakamura Lab., Hosei Univ.
- A-15** Unfixed, probably poster 1 from Wakao Lab., Waseda Univ.

Group B

- B-1** Ksenia Siadkowska, “Hydrogen Mixing Analysis in the Dual Fuel CI Engine”
- B-2** Hiroshi Masuda, Yoshifumi Okamoto (Hosei University), and Shinji Wakao (Waseda University), “Study on Topology Optimization of Electromagnetic Apparatus in Time Domain Electromagnetic Field with Magnetic Nonlinearity”
- B-3** Zbigniew Czyż, “Application of Computational Fluid Dynamics Methodology in the Gyroplanes Aerodynamic Calculations”
- B-4** Reiya Suzuki, Kazuaki Takahashi, Yoshifumi Okamoto (Hosei University), and Shinji Wakao (Waseda University), “Fundamental Study on Improvement of Torque Characteristic of Permanent Magnet Assisted Reluctance Motor Using Topology Optimization Method”
- B-5** Mateusz Paszko, “Can the Brick Be More Aerodynamic Still Being a Brick?”
- B-6** Kazuaki Takahashi, Reiya Suzuki, and Yoshifumi Okamoto (Hosei University), “Torque Analysis of Various Synchronous Motors”
- B-7** Michał Biały, “Finite Elements Method in tests of water channels of internal combustion engines”
- B-8** Masato Hayatsu, Yoshifumi Okamoto, Yuta Nakamura, and Sousuke Nakamura (Hosei University), “Eddy Current Analysis of Magnetic Levitation Device Supported by Permanent Magnets with Halbach Array”
- B-9** Tytus Tulwin, “Rotorcraft rotor blade computational fluid dynamics analysis”
- B-10** Unfixed, probably poster 3 from Sousuke Nakamura Laboratory, Hosei Univ.
- B-11** Konrad Pietrykowski, “FEM analysis of piston for aircraft two stroke diesel engine”
- B-12** Unfixed, probably poster 2 from Wakao Laboratory, Waseda Univ.
- B-13** Zdzisław Kamiński, “CFD investigation of the vertical axis wind turbine”
- B-14** Unfixed, probably poster 3 from Wakao Laboratory, Waseda Univ.

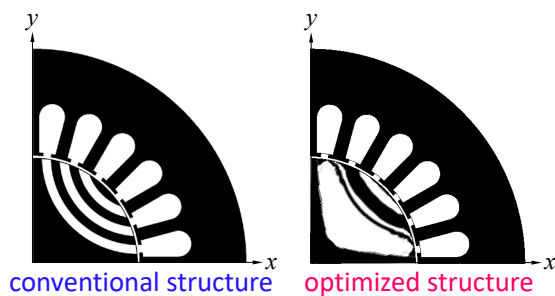
Presenters from Japan



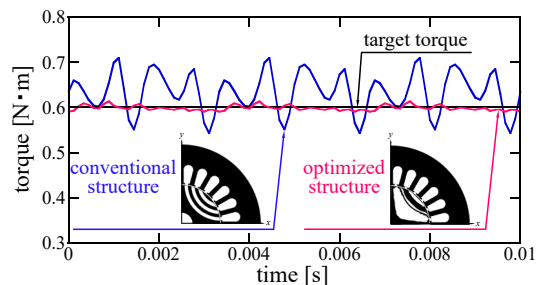
Kazuo Yana received the B. S., M. S. and Ph.D. degrees in electrical engineering from Waseda University in 1974, 1976, and 1979 respectively. Currently, he is a professor of applied informatics at Hosei University, Tokyo. From 1989 to 1990 He was a visiting associate professor at M.I.T. division of health sciences and technology. His research interests are biomedical signal processing and its application to the ubiquitous health care system development. He is a member of the IEEE Engineering in Medicine and Biology Society and Japanese Society for Medical and Biological Engineering. He has been organizing a series of the international workshop on bio-signal interpretation since 1996. He is also the editor in chief of the international journal of bioelectromagnetism.



Yoshifumi Okamoto was born in Nara, Japan. He received ph. D. degree from Okayama University, Japan. After that, engaged in postdoctoral researcher at RIKEN, and he became an assistant professor at Utsunomiya University. Then, he stayed at Graz University of technology in Austria as visiting researcher during half year in 2013. Then, he became an associate professor in the department of electrical and electronic engineering in 2015, he has been professor since 2018 at Hosei University. His research interests are advanced methodology for electromagnetic field computation, topology optimization method of electrical machine, and so on. Figure shows the example of topology optimization. He is a member of IEEE Magnetics Society, the International Compumag Society, the Institute of Electrical Engineering of Japan, and the Japan Society for Computational Engineering and Science.



(a) change of rotor structure



(b) torque characteristics

Figure Example of topology optimization for synchronous reluctance motor.



Sousuke Nakamura received the Dr. Eng. degrees in electrical engineering from the University of Tokyo in 2012. Currently, he works as Associate Professor at the department of electrical and electronic engineering at the Hosei University. His current research interests are robotics for human augmentation. Thus, virtual reality, vital sensing, personal mobility, scientific sports training, and wireless power transfer for the wearable and mobile devices, have been his main research topics. Dr. Nakamura is a Member of the IEEE, the Society of Instrument and Control Engineers of Japan, the Institute of Electrical Engineers of Japan, the Japan Society of Mechanical Engineers, and the Robotics Society of Japan. He is an author of 16 journal papers including 3 IEEE journals, and 6 patents. Fig. 1 shows daily monitoring of ECG signal using capacitive electrode. Fig. 2 shows wireless power transfer system which enables all functions, power transfer, sensing and communication, with common hardware components

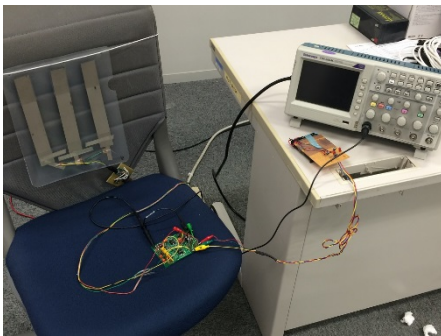


Fig. 1. Daily monitoring of ECG signal using capacitive electrode.

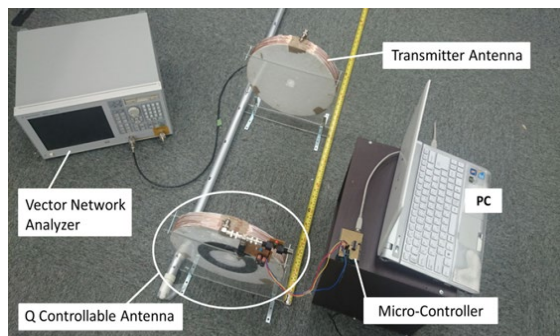


Fig. 2. Wireless power transfer system.



Shinji Wakao was born in Fukuoka, Japan in 1965. He received B.S., M.S., and Ph. D. degrees in 1989, 1991 and 1993, respectively, from Waseda University, Tokyo, Japan. He became a Professor in the Department of Electrical Engineering and Bioscience in 2006, and since 2016, he has been the Dean of School of Advanced Science and Engineering, Waseda University. He is an executive board member of Japan Solar Energy Society, a member of an electric power safety commission in the Ministry of Economy, Trade and Industry, Japan, etc. His research interests are electromagnetic field computation, photovoltaic power generation system, and design optimization of electric machines.



Masato Hayatsu was born in Tokyo, Japan in 1995. He received a B.S. degree in department of electrical and electronic engineering from Hosei University, Tokyo, Japan in 2017, and is presently a candidate for a M.S. student in electrical and electronic engineering. His research interests include eddy current loss analysis using FEM with nonconforming connection. Fig.1 shows analysis model to calculate an eddy current loss to occur in a copper plate. Fig.2 shows the result of eddy current loss compared conforming (conventional FEM) with nonconforming. And he will try to analyze an eddy current magnetic levitation system with revolving permanent magnets in the future.

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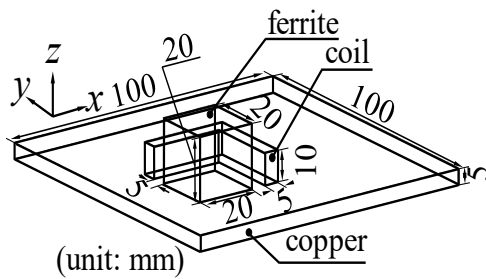


Fig. 1. Analysis model

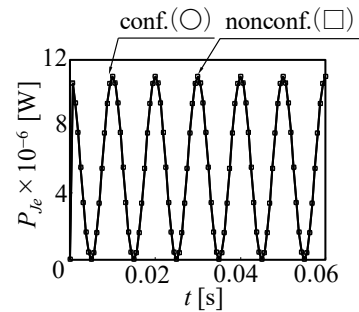


Fig. 2. Result of eddy current loss



KAKITA SHIMPEI was born in Tokyo, Japan in 1994. He received a B.S. degree in electrical and electronic engineering from Hosei University, Tokyo, Japan in 2017, and is presently a candidate for a M.S. degree in electrical and electronic engineering. His research interest is ultra large scale electromagnetic field analysis based on parallelized space time finite element method. These figures show the difference of parallelization efficiency between first order, second order and reduced second order element in parallelized finite element method based on domain decomposition technique. As a result, he attains up to about six times the efficiency in this model.

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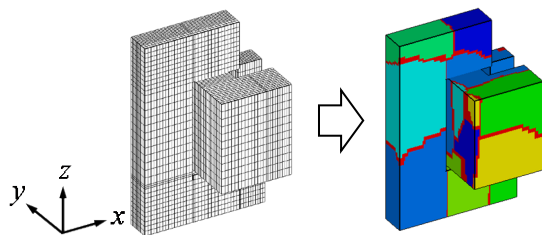


Fig. 1. Mesh partition of problem 20.

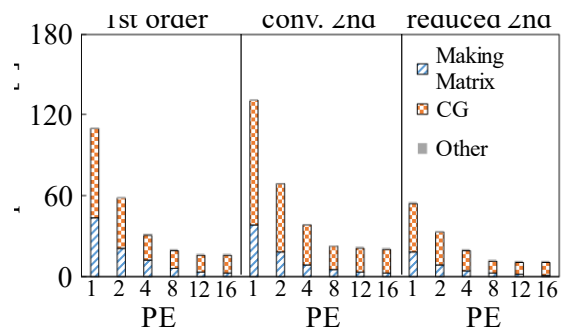


Fig. 2. Elapsed time among main components of FEM in problem 20.



Makoto Kumagai is a post graduate student in the department of electrical and electronics engineering, Hosei University, Japan. His research interests fast and large-scale computation in nonsymmetric linear system derived from electromagnetic field analysis. Fig. 1 shows the comparison of convergence characteristics using Eisenstat's technique or not in BiCGStab method preconditioned Gauss-Seidel(GS). In addition, TABLE I shows elapsed time. This problem is derived from time-periodic FEM analysis in three-layer magnetic shielding and reduced to two-dimensional.

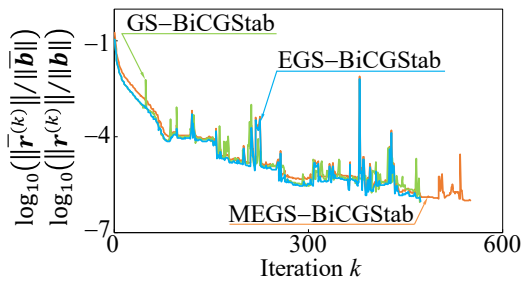


Fig. 1. Convergence characteristics.

TABLE I ELAPSED TIME

Precond.	itr.	Elapsed Time [s]
GS	472	68.2
EGS	473	36.3
MEGS	550	31.9



Hiroshi Masuda was born in Kanagawa, Japan in 1993. He received a B.S. degree in electrical and electronics engineering from Hosei University, Tokyo, Japan in 2017, and is presently a candidate for a M.S. degree in electrical and electronic engineering. His research interests include automatic design method of electromagnetic apparatus structure using electromagnetism. Fig. 1 shows the topology optimization result of induction heating equipment published in the journal "Open Physics" in 2017. In that paper, he proposed the optimization method "R - SLP" that can effectively suppress the oscillation of the objective function. Presently, he is studying topology optimization of induction heating equipment in time domain electromagnetic field with magnetic nonlinearity.

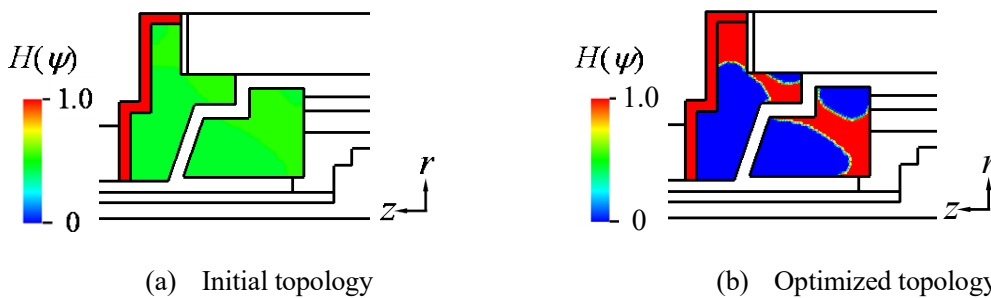


Fig. 1. Optimization results derived from R-SLP.



Satoshi Namiki was born in Tokyo, Japan in 1994. He received a B.S. degree in electrical and electronic engineering from Hosei University, Tokyo, Japan in 2017, and is presently a candidate for a M.S. degree in electrical and electronic engineering. His research interests thermal design of electrical machinery. His main area of research involves heat conduction, heat transfer, and thermal fluid. Currently, he develops thermal fluid analysis software to clarify induction heating phenomenon.

Fig. 1 shows the analysis model in which silicon of the object to be heated is loaded inside the resonator. Also, Fig. 2 shows the analysis result calculated by heat conduction analysis taking account of heat transfer on the surface of the object to be heated.

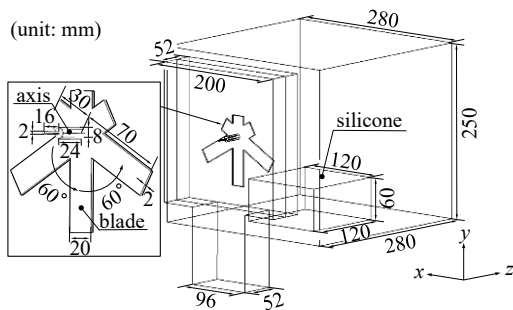


Fig. 1. Stirrer fan type resonator

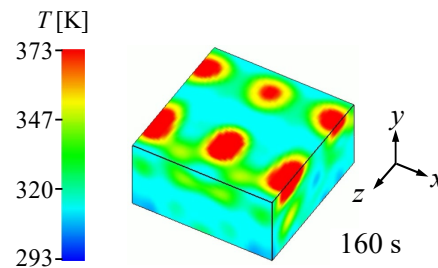


Fig. 2. Heat distribution



Hiroyuki Sawada was born in Iwate, Japan in 1995. He received a B.S. degree in department of electrical and electronics engineering from Hosei University, Tokyo, Japan in 2018, and is presently a candidate for a M.S. degree in department of electrical and electronics engineering. His research interests include optimization method for electrical machinery coupling with structural analysis. Fig.1 shows a model of magnetic shielding and boundary condition. Fig.2 shows the results of structural optimization. In the future, he will conduct coupled analysis of electromagnetic field and structure to search better optimized shapes.

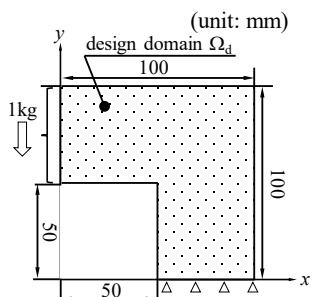


Fig.1. Optimization model.

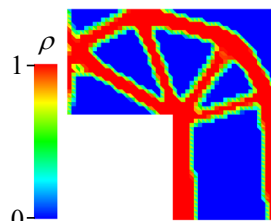


Fig.2. Optimization results.



Yuta Nakayama was born in Saitama, Japan in 1995. He received a B.S. degree in the department of electrical and electrical engineering from Hosei University, Tokyo, Japan in 2018. and is presently a candidate for a M.S. degree in the department of electrical and electrical engineering. His research interests include mesh generation method for finite element method.

Fig.1 shows the allocation of initial node. For this allocation, moving the nodes by solving the equation of motion of bubble model, it becomes as shown in Fig.2. Finite element mesh can be generated by adapting Delaunay triangulation to the allocation of moved node as shown in Fig.3. The mesh generated by this method is suitable for finite element analysis.

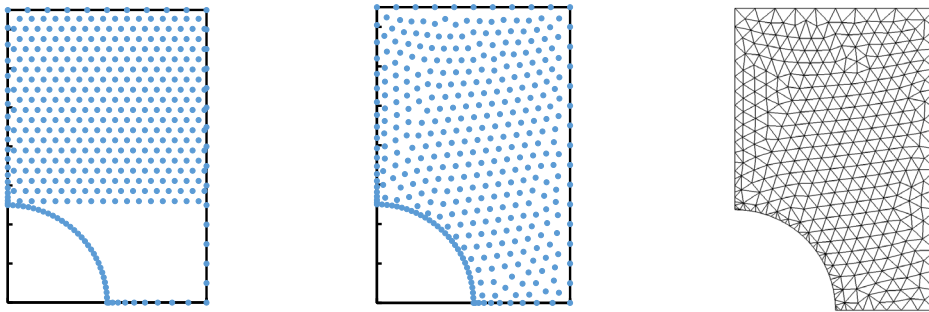


Fig.1 allocation of initial node Fig.2 allocation of moved node Fig.3 generated mesh



Narichika Nakamura was born in Ibaraki, Japan in 1995. He is presently a candidate for a B.S. degree in department of electrical and electronics engineering from Hosei University, Tokyo, Japan. His research interests include combination of boundary element and finite element method and the parallel processing with domain decomposition by using MPI.

Fig.1 shows a model and boundary condition. Fig.2 shows the results of electrostatic field analysis by using boundary element method. In the future, he develops the hybrid FEM and BEM for electrical magnetic field analysis.

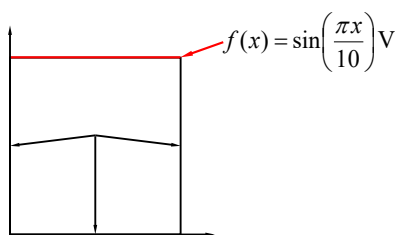


Fig.1. Boundary condition

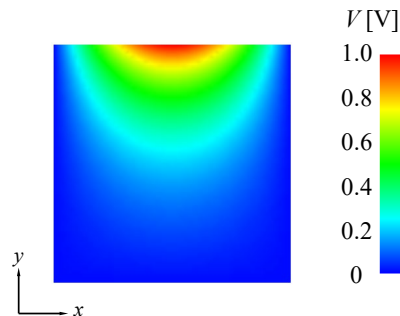


Fig.2. Results of electrostatic field analysis



Reiya Suzuki was born in Saitama, Japan in 1995. He received a B.S. degree in the department of electrical and electronic engineering from Hosei University Tokyo, Japan in 2018, and is presently a candidate for a M.S. degree in the department of electrical and electronic engineering. His research interests focus on the structure search of electrical machinery such as permanent magnet assisted synchronous reluctance motor (PMASynRM). He's trying to implement topology optimization in

PMASynRM.

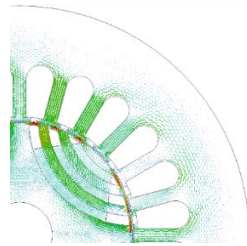


Fig.1 shows the magnetic field distribution of PMASynRM.



Kazuaki Takahashi was born in Tokyo, Japan in 1994. He received a B.S. degree in the department of electrical and electronic engineering from Hosei University, Tokyo, Japan in 2018, and is presently a candidate for a M.S. student in electrical and electronic engineering. His research interests focus on the iron loss analysis of electrical machinery such as Synchronous Reluctance Motor(SynRM). Fig.1 shows the model of permanent magnet assisted synchronous reluctance motor(PMASynRM). the material of shaft is S45C, rotor and stator core is 50A1300 which is nonlinear material.

Bonded magnet(residual magnet density $B_r = 0.67$ T), ferrite magnet($B_r = 0.5$ T) and air are applied to magnet area. Torque analysis which evaluated toward integral boundary T_f by nodal force method for 30 degrees pitch per 1 degree, respectively. This motor is operated by three-phase current $i_u(t)$, $i_v(t)$, $i_w(t)$ which the amplitude of input current is 3 Arms \times 35 turns, and current phase angle is variable, set between -180 degrees and 180 degrees per 5 degrees pitch. The rotor is rotated at 1,500 rpm. Fig.2 shows torque analysis of PMASynRM. current phase angle of Maximum torque are 145 degrees in bonded magnet and ferrite magnet, and 45 degrees in air. However, maximum torque(2.0 Nm) of interior permanent magnet synchronous reluctance motor(IPMSM) is superior to that of PMASynRM, so rotor structure will be optimized by topology optimization(T.O.) in the future.

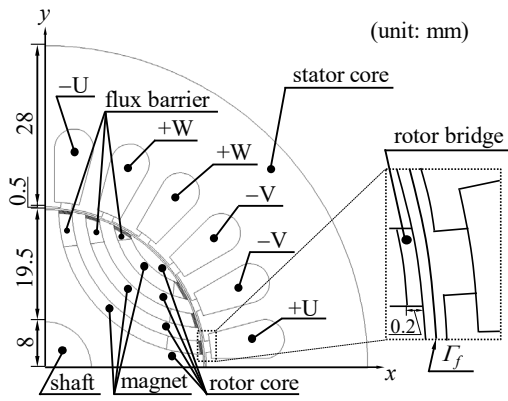


Fig.1. PMASynRM structure.

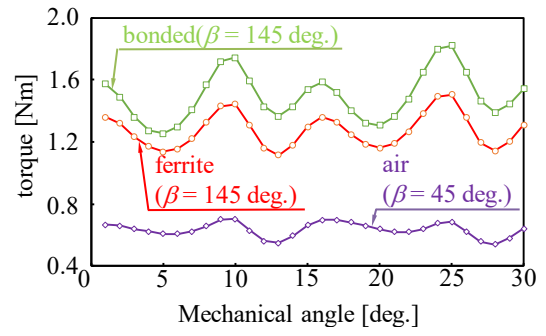


Fig.2. Torque analysis characteristics.



Professor Mirosław Wendeker is a renowned technology expert with over 30 years of experience in the field of automotive, aerospace and energy industries. Prof. Wendeker invented, tested and implemented a number of advanced technologies, certified by 13 patents and awarded with a gold medal at the 2014 Geneva Inventions international conference. Prof. Wendeker was awarded a “Renoma Roku 2014” award in the field “Inventor” by *Prestiz* magazine. In VERS Company, Prof. Wendeker is responsible for Product Development, Research and Technology.

Prof. Wendeker successfully introduced to market a number of products - photovoltaic citybus energy management system, new type of aerospace engine, automotive injection control system, automotive diagnostic system and others. Prof. Wendeker worked on new technologies with major global players in the Automotive Industry, i.e. Delphi, Bosch and AVL Technologies.

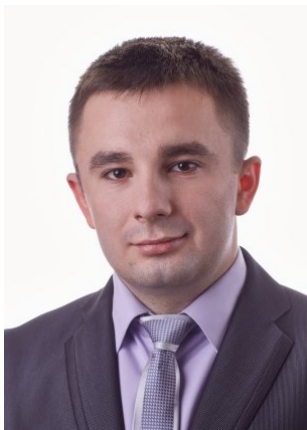
Prof. Wendeker holds a position of the Head of the Department of Thermodynamics, Fluid Mechanics and Propulsion Aviation, is a former Associate Dean for Science of Faculty of Mechanical Engineering, founder and CEO of the Auto&Aero Technologies company. Prof. Wendeker promoted a dozen of PhD candidates and authored hundreds of publications in the field of mechanical engineering.



Ksenia Siadkowska is a PhD student at the Faculty of Mechanical Engineering at the Lublin University of Technology. She is a graduate in management and production engineering. She is an author of twenty five publications in the field of automotive engineering and aviation. Her scientific interests involve alternative fuels, thermovision and project management. Her PhD thesis is about burning hydrogen in the dual fuel CI engine.

Ksenia Siadkowska is a laureate of many scholarships and internships, including the internship at the Ivey Business School at the University of Western Ontario in Canada – one of the best MBA programs. For over six years, she has been working on automotive and aircraft research projects for The National Centre for Research and Development as a member of Professor Wendeker’s research team.

POSTER: Hydrogen Mixing Analysis in the Dual Fuel CI Engine



Zbigniew Czyż (4th year PhD student, Construction and Operation of Machines, Lublin University of Technology)

Zbigniew Czyż, a PhD student and researcher at the Faculty of Mechanical Engineering of the Lublin University of Technology. He graduated in construction and operation of aircraft propulsion systems. He is an author of fifty six scientific papers and seven patent applications. He has conducted research in many R&D projects on aviation propulsion systems and fluid mechanics. His research is aimed at the practical application and cooperation between science and enterprises. He is an inventor of the method and device for short take-off and landing of the aircraft, especially for the gyrocopter.

POSTER: Application of Computational Fluid Dynamics Methodology in the Gyroplanes Aerodynamic Calculations



Mateusz Paszko is a PhD candidate and member of a research team at the Department of Thermodynamics, Fluid Mechanics and Aviation Propulsion Systems at the Lublin University of Technology. His research interests focus on the aerodynamics of heavy vehicles and energy recovery systems. He is an author of fifteen publications and seventeen patent applications in the field of mechanical engineering. Mateusz Paszko is also a founder and CEO of Feedback Innovations Ltd. where he is responsible for product development.

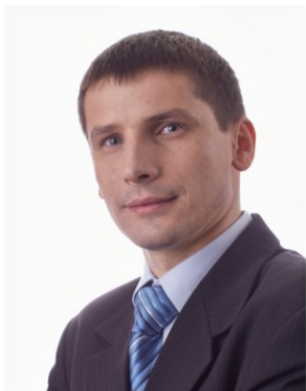
POSTER: Can the Brick Be More Aerodynamic Still Being a Brick?



Adam Majczak has been associated with the Lublin University of Technology for more than 14 years, first as a student, and then as a doctoral student and research worker. He took an active part in the implementation of many research projects in the field of automotive, aerospace and energy industries. Some of them have been successfully implemented in the industry.

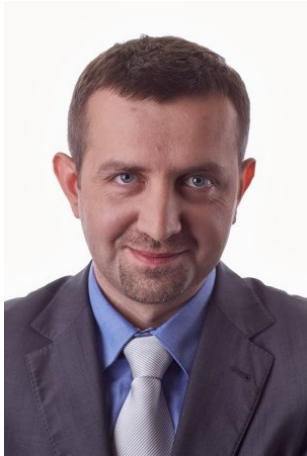
During his research work, Adam Majczak completed many national and international internships and training courses addressing his research interests. He is also a co-author of over a dozen scientific publications. Adam Majczak is also a co-creator of several patents, and one of them, i.e. "The method of a hydrogen combustion support in an internal combustion engine" was awarded a silver medal at the 41st International Exhibition of Inventions in Geneva.

POSTER: Simulation tests of the combustion process in the Wankel engine



Marcin Szlachetka is a PhD researcher of the Faculty of Mechanical Engineering at the Lublin University of Technology. He is currently working toward his postdoctoral degree. The scope of his research includes the construction of internal combustion engines – mechanical and thermal loads of engines, the control of the fuel injection process in spark ignition and diesel engines and mechanical loads and dynamic phenomena in machine construction. Marcin Szlachetka is a co-author of three patents and authored a few dozens of publications in the field of mechanical engineering.

POSTER: The comparative research on the occurrence of the fuel film phenomenon in petrol and ethanol fuelled engines



Łukasz Grabowski has been working as a teacher and researcher at the Faculty of Mechanical Engineering at the Lublin of University of Technology for 12 years. He was granted his PhD degree in 2010. His PhD thesis addresses the aspects of gas fuel injection in the SI engine. He is experienced in conducting R&D projects. At present, he is conducting the research for the Polish aircraft engine manufacturer working on a project of a new type of Diesel engine. His current research interests include the efficiency of electric power generation in vehicles, the modeling of combustion engine processes and data analysis.

POSTER: The Electric Power Generation Efficiency in Vehicles



Rafał Sochaczewski is a graduate in mechanics and mechanical engineering (2005) and a PhD in technical sciences in construction and operation of machines (2011) at the Faculty of Mechanical Engineering of the Lublin University of Technology. He is currently working toward his postdoctoral degree. The scope of his research includes the construction of internal combustion engines – a dual fuel supply system for the diesel engine, the control of fuel injection, the modeling of a fuel system. Rafał Sochaczewski is a co-author of three patents. He authored about thirty publications on mechanical engineering.

POSTER: Experimental investigation of a diesel engine fueled by directly injected natural gas



Grzegorz Barański graduated from the Mechanical Engineering Faculty at the Lublin University of Technology. In 2015, he was granted a doctoral degree in technical sciences in machinery construction and operation. His doctoral dissertation explored the relationship between a quality of mixture composition control and the structure and parameters of the algorithm to control natural gas injection into spark ignition engine intake manifolds. In 2005-2017, he conducted some research in several national and international R&D projects. At present, he is involved in the research for the Polish aircraft engine manufacturer working on a new type of diesel engine.

Grzegorz Barański is employed in the Department of Thermodynamics, Fluid Mechanics and Aviation Propulsion Systems. As an academic teacher, he chiefly teaches courses in the construction of internal combustion engines, aviation propulsion systems and electronic control systems.

His research interests are digital technologies, programming and digital signal processing. By profession, he generally deals with control systems and test and measuring equipment for scientific and industrial applications.

POSTER: The efficiency of the vehicle recuperative system transducer



Michał Biały is a PhD student at the Faculty of Mechanical Engineering of the Lublin University of Technology. His PhD dissertation focuses on the methods of increasing a share of alternative fuels in fueling a rotary internal combustion engine. He co-authored three patents. Two of them were awarded a World Intellectual Property Organization Certificate, and the one on directly injected CNG in the diesel engine was awarded a bronze medal at the International Exhibition of Inventions in Geneva in 2012. Michał Biały authored or co-authored more than twenty five research papers, six presentations and four monograph chapters.

POSTER:

Finite Elements Method in tests of water channels of internal combustion engines



Michał Gęca received PhD degree in the Faculty of Mechanical Engineering at the Lublin University of Technology, Poland, in 2015. He is a researcher at the Lublin University of Technology for 12 years. His current research interests include data analysis from combustion engines. Also his research work includes comparison between solar radiation reaching steady and moving objects. He is an author of more 40 scientific articles and 2 patents, is involved in many national and European projects including 7 FP UE. All research carried out are directed to practical application and close Business- Science cooperation. He conducts research concerning the photovoltaic technology application in the automotive industry.

POSTER:

Long-term data analysis of solar radiation from steady and moving objects



Tytus Tulwin is a PhD candidate at the Lublin University of Technology. His main area of research involves computational fluid dynamics, heat transfer, combustion and aerodynamics. He is passionate about energy transfer considerations. For his PhD thesis, he studies energy use and efficiency of rotorcraft systems.

Tytus Tulwin is an author of 19 scientific publications. He is experienced in the field of combustion engine modelling including mass and heat transfer, fuel injection, kinetic/diffusion flame combustion and conjugate heat transfer. He was also involved in heat exchangers and porous medium flow modelling.

POSTER:

Rotorcraft rotor blade computational fluid dynamics analysis



Konrad Pietrykowski has been working as a teacher and a researcher at the Faculty of Mechanical Engineering at the Lublin University of Technology for 12 years. He was granted his PhD degree in 2010. His PhD dissertation focuses on the combustion process in the high power radial aircraft engine. He has experience in R&D projects. He is presently researching for the Polish aircraft engine manufacturer working on a new type of Diesel engine. His current research interests include the modeling of a combustion engine process.

POSTER: FEM analysis of piston for aircraft two stroke diesel engine



Zdzisław Kamiński (graduated in machinery construction and operation from the Mechanical Engineering Faculty, Lublin University of Technology)

Zdzisław Kaminski graduated in the field of construction and operation at the Lublin University of Technology. He is a co-author of ten scientific articles and three patent applications. He is a researcher in R&D projects and a participant of scientific seminars and conferences. His research aims at the practical application of a VAWT wind turbine with an adjustable working surface.

POSTER: CFD investigation of the vertical axis wind turbine