

Institute of Electrotechnology, Leibniz University of Hanover, Germany

Department of Control and System Analysis in Heat-and-Power Engineering,
Samara State Technical University, Russia

WORKING PROGRAMME AND TIME SCHEDULE
for the Internship of PhD student Marco Baldan (ETP) at SamSTU
in the period from 16.09.2018 till 15.09.2019
(addition to the PROGRAM of the mutual work)

The internship takes place in the frame of the agreement on joint training of PhD students between Institute of Electrotechnology, Germany, and Samara State Technical University (Samara Polytech), Russia, signed on October 12th 2017.
Scientific supervisor at the Institute of Electrotechnology – Prof. Dr.-Ing. B. Nacke.
Scientific supervisor from the side of SamSTU – Prof. Yu. Pleshivtseva.

Inductor optimal design for hardening applications using alternance method and stochastic algorithms	
1.	Inductor optimal design in the case of a cylindrical billet 1.1 Use of stochastic algorithms for optimizing a 2 windings inductor in order to get a uniform temperature in the surface layer; 1.2 Comparison of results obtained with alternance method at SamSTU; 1.3 Theoretical investigation and practical application of alternance method to the current case study.
2.	Inductor optimal design of a “L” axisymmetric profile 2.1 Application of stochastic algorithms for optimization of 3 windings inductor (2D FEM model) in order to get a uniform temperature distribution in the hardened surface layer 2.2 Comparison of results obtained by alternance method at SamSTU; 2.3 Application of alternance method for solving the case study.
3.	Development of approaches for inductor optimization in the case of complex geometry work-pieces (3D FEM models)
4.	Writing a chapter of dissertation with the title: «Inductor optimal design for hardening applications using alternance method and stochastic algorithms».

5.	Preparation of a report for a new experimental activity for ETP students based on experiments done during the UIE-course in Mai 2017.
6.	Common publications in Scientific Journals and presentations for conferences: <ul style="list-style-type: none"> - High rated Journal indexed in Scopus or Web of Science; - Padua Conference HES-19; - Samara conference "Problems of simulation and control by complex systems"

Hanover, 13/07/2018

Nacke



Prof. Dr.-Ing. B. Nacke
 Director of the Institute of
 Electrotechnology,

Leibniz University of Hanover,
 Germany

Samara 13/07/2018

Yu. Pleshivtseva



Prof. Yu. Pleshivtseva
 Deputy Head of the Department of Control
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