



3. development of methods for experimental research and optimization of components of turbo/superchargers and engine charge exchange.

Experience-based semi-empirical methods will be calibrated by detailed simulations at higher level of modeling.

**Prof. Ing. Michael Valášek, DrSc.,** <http://www.fs.cvut.cz>

- knowledge support of engineering design and automated design in vehicles;
- model based predictive control for nonlinear and adaptive control of nonlinear systems of combustion engines, powertrains and integrated vehicle chassis;
- model based nonlinear predictive control with constraints for generally underactuated nonlinear systems in mechatronic vehicle systems and integrated chassis control of vehicles;
- model based nonlinear predictive control with constraints for hierarchical control of distributed/decentralized (passive renewable/ active fuel) energy resources „smart grids“ for energy efficient buildings.

The topics should be selected preliminarily by the candidate.

**Additional requirements on candidates:**

- Proven abilities of publishing the results of R&D are the most important criterion for applicant's assessment.
- Specific experience with CAE simulation methodology (Finite Element Method (FEM), Computational Fluid Dynamics (CFD) or Multi-Body Simulation (MBS) in connection to CAD (Creo or Pro/Engineer, Catia v5) is an advantage.
- Specific experience with CAE simulation software (FIRE, GT Suite, Fluent) is an advantage.
- Expertise with multi-domain system modeling (behavioral 1D up to detailed 3D) and/or multi-attribute optimization is an asset.
- Knowledge, experience and skills in the field of experimental investigation of combustion engines and motor vehicles are an advantage.
- Knowledge of programming languages (Fortran, VisualBasic, C++) and/or knowledge of Matlab are an advantage.

**Conditions:**

- the contract with the employee will be valid for the period since date of admission (at the earliest 15th October 2013) till 30th June 2015;
- the research activities will be carried out at the Czech Technical University, Josef Božek Research Centre located in Roztoky (<http://www.vtp-roztoky.cz>) suburb of Prague, Czech Republic;
- the employee will take part in teaching activities in the range of 3-5 hours/week;
- gross salary of at least 56 000 Czech Crowns (CZK) – approx. 2100€, well above the national average salary (1000€); social and health insurance paid by the employer; possible increase in case of excellent results after the first 6 months; the result assessment depends on contribution to publishing activities of research teams;
- paid business trips to present the results at one or more congresses or conferences annually ;
- paid, minimum of 3 months practice in industrial R&D in the Czech Republic or abroad (e.g., Škoda Auto, Porsche Engineering Services Prague, AICTA Design Works, Ricardo Prague, Honeywell Turbo Technologies, etc.);
- possibility to continue employment and academic carrier after the end of the project, especially

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**the interview with present or skype contacted candidate may be required, will take place on October 10.**

**Altogether, 5 full-time candidates may be employed (at least 2 graduates from universities other than CTU). In case the accepted candidates will not use the full budget resources planned the tender for vacant positions will be repeated after November 2013.**

To apply, please send by e-mail and (followed) by a letter, which both should reach contact person at CTU in Prague till **October 4, midnight**:

1. a detailed CV in English or Czech, at least one page A4 (including list of published papers with the full bibliographic data and impact factor of the journal according to WoS, patents and realized engineering works – applicants with better publication activities will be preferred); the applications without detailed information on impact factor will not be assessed;
2. a letter of motivation in English or Czech stating the selected # of topics mentioned above and commenting details of your intentions in doing that research;
3. copy of the certificate of English language knowledge (e.g., CAE or TOEFL or electronic version of PhD. Thesis in English);
4. copies of the master and Ph.D. diplomas;
5. one recommendation letter in English or Czech with the full e-mail and phone contacts to the recommending person.


Additionally (voluntarily),

6. full-text electronic copies of three of your best published papers/articles.

Contact person for letters and mail is Ing. Eva Zbožínková  
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Technická 4  
CZ-166 07 Praha 6  
Czech Republic








The full description of tender conditions (including the rules for assessment committee procedure, etc. – in Czech) is exhibited at <http://bozek.cvut.cz>.

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