

CURRICULUM VITAE



Name: **Assoc. Prof. Petr Bartos, Ph.D.**

Born: October 2nd 1979, Ceske Budejovice

Place of residence: Na Stepnicich 960/22, 373 72 Lisov, Czech Republic

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bartos-petr@seznam.cz

Status: married, wife Ladislava
children Petr, Jana, Ondrej, Klara and Pavla

FIELD OF INTEREST

Artificial intelligence and machine vision in agriculture
Optimization of technology processes
Mathematical and computer modeling of physics-technical practice
Material engineering and plasma technology

EDUCATION

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| 2013 | Czech Technical University in Prague – Faculty of Mechanical Engineering
Habilitation in field: Material Science and Engineering (Associate Professor) |
| 2003 - 2007 | Charles University in Prague – Faculty of Mathematics and Physics
Study program: Mathematical and Computer modeling (Ph.D.) |
| 1998 - 2003 | University of South Bohemia in Ceske Budejovice – Faculty of Education (MSc.) |
| 1994 - 1998 | Gymnasium J. V. Jirsika in Ceske Budejovice (high school) |

EMPLOYMENT

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| since 2003 | University of South Bohemia in Ceske Budejovice
since 01/2022 Faculty of Agriculture and Technology
since 09/2003 Faculty of Pedagogy
2013 – 2022 Faculty of Agriculture |
| 2008-2011 | Technical University in Liberec, Faculty of Mechanical Engineering
Research assistant |

Part-time contracts in companies: **CEZ a. s., SurfaceTreat a. s., RERA a. s., Robert BOSCH, spol. s r. o., Private Higher and Professional School and Business Academy s.r.o., etc.**

MANAGEMENT EXPERIENCE

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| since 2022 | Dean, Faculty of Agriculture and Technology, University of South Bohemia in Ceske Budejovice (USB) |
| 2020 - 2022 | Dean, Faculty of Agriculture, University of South Bohemia in Ceske Budejovice (USB) |
| 2017 – 2020 | Vice-dean for Quality at Faculty of Agriculture, USB |
| 2013 – 2020 | Head of the Department of Agricultural Machinery and Services, Faculty of Agriculture, USB |
| 2016 – 2017 | Member of Academic Senate, Faculty of Agriculture USB |
| since 2013 | Head of the Centre for Best Available Technologies (BAT centre) at USB |
| 2004 – 2012 | Vice-head of Department of Applied Physics and Technics, Faculty of Education, USB |

Project leader, project co-researcher or team member – more than 10 projects, for example:

TAČR TREND FW04020036	Automatisation and digitalisation of data collection in bee tunnel and bee hives within ecotoxicological tests of agrochemicals according to OECD 75 (2022–2024 – <i>project leader from USB</i>)
TAČR Delta 2 TM03000063	Joint research and development of key technologies for efficient intelligent fine production and intelligent management and control of facility vegetable plants (international project, 2022–2024 – <i>project leader from USB</i>)
TAČR Delta 2 TM02000027	Research and Development of Smart Technologies for Cattle and Pig Breeding based on Advanced Computational Approaches (international project, 2021–2023 – <i>project leader from USB</i>)
TAČR TREND FW03010447	Development of an intelligent system for increasing the performance of dairy cattle using artificial intelligence methods (2021–2025 – <i>project leader from USB</i>)
TAČR TREND FW01010391	Development of a system for continuous identification and ethological monitoring of animals in cattle breeding by methods of Artificial Intelligence (2020–2023 – <i>project leader from USB</i>)
MPO TRIO FV40316	Development of a complex system of robotic milking system with simultaneous evaluation of breeding parameters using artificial intelligence methods (2019–2022 – <i>project leader from USB</i>)
NAZV QK1910174	Improving the quality of milk and its economic indicators by using an automatic monitoring system for selected parameters in real time. (2019–2023 – <i>member of the research team</i>)
MPO TRIO FV30234	The research and the development of laser printing glass surfaces both small and large format to meet the needs of today's construction (2018–2020 – <i>project leader from USB</i>)
TACR TA04021252	Development of equipment for the physical and biological treatment of seeds and malt using low-temperature plasma (2014–2017 – <i>project leader</i>)
MPO – OPPIK	New process of treatment of agricultural products (seeds) against molds, Operational Program Enterprise and Innovation for Competitiveness in Czech Republic – <i>project leader for Faculty of Agriculture, USB</i>)
Innovation4Welfare	ROBO MD – Home Care Robot for monitoring and detection of critical situations, project of European Union (2010–2011 – <i>project manager</i>)
GAČR GP202/09/P140	Dynamics of microparticles in low-temperature plasma – study by hybrid methods of computer modeling (2009–2011 – <i>project leader</i>)
AVČR KAN101120701	Nanocomposite layers and nanoparticles produced in low-pressure plasma for surface modification (2007–2011 – <i>team member of project</i>)
MŠMT 1M0577	Research Center for Nanosurface Engineering (2005–2009)

PUBLISHING ACTIVITIES

Summary

Articles in Journal with Impact Factor (JIF): > 40	Certified methodology:	2
Articles in Reviewed journals: > 15	Chapter in a foreign book:	2
Conference proceedings publication: > 50	Citations:	> 400
Patents, utility models: 5	h-index:	9

Selection from publications:

- Kocira S., Péret-Pizá M. C., Bohata A., Bartos P., Szparaga A., 2022. Cold plasma as a potential activator of plant biostimulants. *Sustainability*, 14, 495, 2022. DOI: 10.3390/su14010495.
- Kriz P., Horcickova M., Bumbalek R., Bartos P., Smutny L., Stehlik R., Zoubek T., Cerny P., Vochozka V., Kunes R. Application of the Machine Vision Technology and Infrared Thermography to the Detection of Hoof Diseases in Dairy Cows: A Review. *Applied Sciences*, 11 (22), 11045, 2021. DOI: 10.3390/app112211045.
- Kocira S., Szparaga A., Krawczuk A., Bartos P., Zagula G., Cerny P. Plant Material as a Novel Tool in Designing and Formulating Modern Biostimulants - Analysis of Botanical Extract from *Linum Usitatissimum* L. *Materials*, 14, 6661, 2021. DOI: 10.3390/ma14216661.
- Kriz P., Kunes R., Smutny L., Cerny P., Havelka Z., Olsan P., Xiao M., Stehlik R., Dolan A., Bartos P. Methodology for Measurement of Ammonia Emissions from Intensive Pig Farming, *Agriculture*, 11, 1073, 2021. <https://doi.org/10.3390/agriculture11111073>.
- Marousek J., Marouskova A., Zoubek T., Bartos P. Economic Impacts of Soil Fertility Degradation by Traces of Iron from Drinking Water Treatment, *Environment Development and Sustainability*, 2021. DOI: 10.1007/s10668-021-01636-1.
- Kriz P., Olsan P., Havelka Z., Bohata A., Balakrishna S. K., Cerny P., Filip M., Bartos P., Kocira S., Spatenka P. Experimental Investigation into the Influence of Plasma Technology on Seed Surface Wettability. *Applied Sciences*, 11, 9994, 2021. DOI: 10.3390/app11219994.
- Xiao M., Liao Y., Bartos P., Filip M., Geng G., Jiang Z. Fault diagnosis of rolling bearing based on back propagation neural network optimized by cuckoo search algorithm. *Multimedia Tools and Application*, 2021. DOI: 10.1007/s11042-021-11556-x.
- Cerny P., Bartos P., Kriz P., Olsan P., Spatenka P. Highly hydrophobic organosilane-functionalized cellulose: A promising filler for thermoplastic composites. *Materials*, 14, pp. 2005, 2021. DOI: 10.3390/ma14082005.
- Kunes R., Bartos P., Iwasaka G. K., Lang A., Hankovec T., Smutny L., Cerny P., Poborska A., Smetana P., Kriz P., Kernerova N. In-line technologies for the Analysis of important Milk Parameters during the Milking Process: A Review. *Agriculture*, 11, pp. 239, 2021. DOI: 10.3390/agriculture11030239.
- Xiao M., Wang W., Shen X., Zhu Y., Bartos P., Yiliyasi Y. Research on Defect Detection Method of Powder Metallurgy Gear Based on Machine Vision, *Machine Vision and Applications*, 32, 51, 2021. DOI: 10.1007/s00138-021-01177-7.
- Zhao J., Xiao M., Bartos P., Bohata A. Dynamic Engagement Characteristics of Wet Clutch Based on Hydro-Mechanical Continuously Variable Transmission, *Journal of Central South University*, 2021, 28, pp. 1377-1389. DOI: 10.1007/s11771-021-4709-7.
- Chen Y., Qian Y., Lu Z., Zhou S., Xiao M., Bartos P., Xiong Y., Jin G., Zhang W. Dynamic Characteristic Analysis and Clutch Engagement Test of HMCVT in the High-Power Tractor. *Complexity* 2021, 8891127, 2021. DOI: 10.1155/2021/8891127.
- Havelka Z., Olsan P., Kuneš R., Stehlík R., Bumbálek R., Zoubek T., Filip M., Šístková M., and Bartoš P. Referenční dokument o nejlepších dostupných technologiích pro intenzivní chovy drůbeže a prasat. České Budějovice: Jihočeská univerzita v Českých Budějovicích, Zemědělská fakulta, 2021. ISBN: 978-80-7394-889-4.
- Filip M., Zoubek T., Bumbalek R., Batista C., Cerny P., Olsan P., Bartos P., Kriz P., Xiao M., Dolan A., Findura P., Advanced Computational Methods for Agriculture Machinery Movement Optimization with Applications in Sugarcane Production. *Agriculture*, 10, pp. 434-453, 2020. DOI: 10.3390/agriculture10100434.
- Findura P., Hara P., Szparaga A., Kocira S., Czerwińska E., Bartos P., Nowak J., Treder K. Evaluation of the Effect of Allelopathic Aqueous Plant Extracts, as Potential Preparations for Seed Dressing, on the Modulation of Cauliflower Seed Germination. *Agriculture*, 10, pp. 122, 2020. DOI: 10.3390/agriculture10040122.
- Kopecký M., Kolář L., Konvalina P., Strunecký O., Teodorescu F., Mráz P., Peterka J., Váchalová R., Bernas J., Bartoš P., Filipov F., Bucur D. Modified biochar - tool for wastewater treatment. *Energies*, 13(20), 5270, 2020. DOI: 10.3390/en13205270.
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- Kocira S., Szparaga A., Hara P., Treder K., Findura P., Bartoš P., Filip M. Biochemical and economical effect of application biostimulants containing seaweed extracts and amino acids as an element of agroecological management of bean cultivation. *Scientific Reports*, 10, 17759, 2020. DOI: 10.1038/s41598-020-74959-0.
- Lazaroiu G., Valaskova K., Nica E., Durana P., Kral P., Bartos P., Marouskova A. Techno – economic assessment: food emulsion waste management. *Energies*, 13 (18), pp. 4922, 2020. DOI: 10.3390/en13184922.
- Zhou S., Xiao M., Bartos P., Filip M., Geng G. Remaining Useful Life Prediction and Fault Diagnosis of Rolling Bearings Based on Short-time Fourier Transform and Convolutional Neural Network. *Shock and Vibration*, vol. 2020, article ID: 8857307. DOI: 10.1155/2020/8857307.
- Maroušek J., Strunecký O., Kolář L., Vochozka M., Kopecký M., Maroušková A., Batt J., Poliak M., Šoch M., Bartoš P., Klieštík T., Filip M., Konvalina P., Moudrý J., Peterka J., Suchý K., Zoubek T., Cera E. Advances in Nutrient Management Make it Possible to Accelerate Biogasproduction and thus Improve the Economy of Food Waste Processing. *Energy Sources, Part A: Recovery, Utilization, and Environmental Effects*, 2020. DOI: 10.1080/15567036.2020.1776796.
- Maroušek J., Kolář L., Strunecký O., Kopecký M., Bartoš P., Maroušková A., Cudlínová E., Konvalina P., Šoch M., Moudrý J., Vaníčková R., Vrbka J. Modified Biochars Present an Economic Challenge to Phosphate Management in Wastewater Treatment Plants. *Journal of Cleaner Production* 272, pp. 123015, 2020. DOI: 10.1016/j.jclepro.2020.123015.
- ISOTHERM s.r.o. Povrchová úprava transparentního plošného konstrukčního dílu a způsob její výroby. Původci: Bartoš, P., Fekete, L., Filip, M., Goldfinger, M., Chlaň, I., Kuneš, R., Minařík, J., Rajchard, J., Smolík, P., Zoubek, T. Česká republika. Patent č. 308218, 2020.
- Zhang G., Zhang Z., Xiao M., Bartos P., Bohata A. Soil-Cutting Simulation and Parameter Optimization of Rotary Blade's Three-Axis Resistances by Response Surface Method. *Computers and Electronics in Agriculture*, 164, pp. 104902, 2019. DOI: 10.1016/j.compag.2019.104902.
- Černý P., Bartoš P., Olšan P., Špatenka P. Hydrophobization of Cotton Fabric by Gliding Arc Plasma Discharge. *Current Applied Physics*, 19(2), pp. 128-136, 2019. DOI: 10.1016/j.cap.2018.11.006.
- Xiao M., Yang Y., Bartoš P., Bohatá A., Chen K. The Design of a Dynamic Temperature Field Measurement System in CVT Gearbox Tractor. *International Journal of Mechatronics and Applied Mechanics*, 2(6), pp. 68-73, 2019.
- Strejčková M., Bohatá A., Olšan P., Havelka Z., Kříž P., Beran P., Bartoš P., Čurn V., Špatenka P. Enhancement of the Yield of Crops by Plasma and Using of Entomopathogenic and Mycoparasitic Fungi: From Laboratory to Large-Field Experiments, *Journal of Biomaterials and Tissue Engineering*, 8, pp. 829–836, 2018. DOI: 10.1166/jbt.2018.1819.
- Kříž P., Olšan P., Havelka Z., Bartoš P., Bohatá A., Špatenka P. Zařízení k ošetření semen plazmatem, užitný vzor č. 32164, 2018.

EDUCATION ACTIVITIES

- Teaching since 2003 – Lectures in Applied Physics, Physics, Computer Modeling in Science and Engineering, Technical Mechanics and others.
- Supervisor of 39 Bachelor's and 35 Master's Theses.
- Supervisor of 8 students of Ph.D. program, Specialist supervisor of 2 students.
- Guarantor of study fields: Agricultural and Machinery Engineering: Business and Services (Bachelor's degree study), Agricultural and Machinery Engineering (Master degree study), Agricultural technologies (Master degree study), Smart Agriculture and Technology (PhD study program).

MEMBERSHIP IN SCIENTIFIC COUNCIL AND COOPERATIVE COUNCIL

Doctoral Councils of Ph.D. program:

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| since 2013 | Physics of Plasma and Thin Layers, University of West Bohemia, Faculty of Applied Sciences |
| since 2013 | General Plant Production, University of South Bohemia, Faculty of Agriculture |
| since 2013 | General Zootechnics, University of South Bohemia, Faculty of Agriculture |

since 2016 Theory of Education in Physics, University of South Bohemia, Faculty of Education

Scientific Council:

since 2022 Scientific Committee of Faculty of Agriculture and Technology, University of South Bohemia (chairman)

2013-2022 Scientific Committee of Faculty of Agriculture, University of South Bohemia (2020 – 2022 chairman, 2013 – 2020 member)

since 2020 Scientific Committee of the University of South Bohemia (member)

since 2020 Scientific Committee of Faculty of Agrobiology, Food and Natural Resources, Czech University of Life Sciences Prague (member)

since 2020 Scientific Committee, Faculty of AgriSciences, Mendel University in Brno (member)

since 2020 Scientific Committee, Faculty of Agrobiology and Food Resources, Slovak University of Agriculture, Nitra, Slovakia (member)

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

since 2009 **The Unity of Czech Mathematicians and Physicists, a member of the Physical Section**
since 2010 Secretary of Ceske Budejovice Branch

since 2021 **Czech Academy of Agricultural Sciences,**
Department of Economy, Management, Sociology and Information Technology

since 2013 **Technical Working Group (TWG) of the Ministry of Agriculture of the Czech Republic**
for category 6.6. pursuant to Act No. 76/2002 Coll. on Integrated Pollution Prevention and Control

2007 – 2015 **Regional Physical Olympiads Committee – South Bohemian Region**

OTHER ACTIVITIES

- Implementation of contracts for supplementary economic activities of Faculty of Agriculture, University of South Bohemia in the total value of more than 320.000 EUR
 - Member of Internal Evaluation Board at University of South Bohemia (06/2017–06/2023)
 - Assessor for the National Accreditation Bureau for Higher Education (since 2017)
 - Slovak Accreditation Agency for Higher Education (Assessor, 2020–2026)
 - Member of the editorial board of scientific journals Agriculture; AgriEngineering; Acta Technologica Agriculturae; Plasma Physics and Technology; Research in Agricultural Engineering
 - Agrarian Chamber of the Czech Republic (member of economic commission)
 - South Bohemian Agency for Innovation Support –member of the Board of Consultants,
 - CEEPUS Coordinator "Engineering as Communication Language in Europe" for Faculty of Agriculture, University of South Bohemia – since 2014
 - The grant manager of the South Bohemian Region to support the rehabilitation and rescue of real and movable cultural heritage and grants to support work with children and youth in interest and education associations
 - Blood donor (silver medal of Professor Jan Jansky)
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