



prof. Ing. Petr Konvalinka, CSc., FEng. **Curriculum vitae**

Date of Birth: October 18, 1960

Academic Qualifications

1979-1984 Faculty of Civil Engineering of the Czech Technical University in Prague, Dipl.-Ing. in Civil Engineering, thesis "*Optimization of concrete mixtures*",
1987-1992 Department of Structural Mechanics of the Faculty of Civil Engineering of the Czech Technical University in Prague, Ph.D. in Mechanics of Rigid and Deformable Bodies and Environment, thesis "*Numerical Analysis of the Box-Girder Concrete Bridges*",
2002 Czech Technical University in Prague, habilitation as an Associate Professor of Mechanics, habilitation thesis "*Contribution to the Experimental Investigation of Stress-Strain Diagram of Concrete in Compression*"
2008 Czech Technical University in Prague, Professor in the field of "Theory of building materials and structures"
2014 Member of the Engineering Academy of the Czech Republic, FEng.

Employment

1980-1984 Blasting Engineer in the field of Demolition of the structures,
1984-1990 Assistant Professor at the Department of Structural Mechanics, Faculty of Civil Engineering, Czech Technical University in Prague,
1990-1991 Consulting Engineer in the field of Design of bridges, Bullen and Partners Consultant Engineers, London
2002-2008 Associate Professor at the Department of Structural Mechanics, Faculty of Civil Engineering, Czech Technical University in Prague,
2004 Head of the Department of Experimental Center, Faculty of Civil Engineering, Czech Technical University in Prague,
2008 Professor at the Department of Structural Mechanics, Faculty of Civil Engineering, Czech Technical University in Prague,
2014-2018 Rector of the Czech Technical University in Prague
2018 Chairman of the Technology Agency of the Czech Republic.

Research activity

Main topic: Experimental and theoretical analysis of material and structural properties of all kind of building materials, parts of structures and large-scale civil engineering structures.

Experimental: material characteristics of all kind of building materials, especially cementitious materials, structural behavior of parts of structures (joints, beams, columns, decks, walls, etc.), civil engineering structures in large scale in the laboratory and also in situ (bridges, highways, high-tall buildings)

Theoretical: structural mechanics – behavior of materials and structures under the loading, numerical analysis of material and mechanical properties of structures.

Research Projects

Principal investigator or co-investigator of over 8 research projects, within the last five years 1 project of excellence of the Czech Science Foundation, 1 research bilateral project of the Ministry of Education, Youth and Sports of the Czech Republic and U.S.A., 2 standard projects of the Czech Science Foundation, 2 projects of the Ministry of Industry and Trade of the Czech Republic, 1 project of the Ministry of Interior Affairs, 1 project of the Ministry of Culture of the Czech Republic, 4 research projects of the Technology Agency of the Czech Republic and Grant agency of the Czech Republic.

Publications

4 chapters in books, over 50 papers in Web of Science, over 50 papers in local journals (Czech Republic, Slovakia, Poland), over 200 contributions in conference proceedings books, 6 patents, 6 utility designs, 3 applied methodologies, 2 verified technology, 1 sold license.

Citations

over 380 citations in WoS, H-index: 8, over 500 citations in SCOPUS, H-index: 11

Selected publications

1. Zatloukalova, J., Zatloukal, J., Hranicek, J., Kolar, K., Konvalinka, P.: Study on the properties of cement composites for immobilization of evaporator concentrates, *Progress in nuclear energy*, Vol. 140, No.: 103919, DOI 10.1016/j.pnucene.2021.103919, Journal IF 2.461, 2021
2. Maca, P., Sovjak, R., Konvalinka, P.: Mix design of UHPFRC and its response to projectile impact, *International Journal of impact engineering*, Vol. 63, Pages 158-163, DOI 10.1016/j.ijimpeng.2013.08.003, Journal IF 4.592, 2014
3. Zatloukalova, J., Dewynter-Marty, V., Zatloukal, J., Kolar, K., Bernachy-Barbe, F., Bezdicka, P., Konvalinka, P.: Microstructural and micro-mechanical property changes of cement pastes for ILW immobilization due to irradiation, *Journal of nuclear materials*, Vol. 540, DOI 10.1016/j.jnucmat.2020.152346, Journal IF 3.555, 2020
4. Sovjak, R., Peskova, S., Smilauer, V., Mara, M., Ruzicka, P., Vydrova, L. C., Konvalinka, P.: Utilization of crumb rubber and FBC-based ternary binder in shotcrete lining, *Case studies in construction materials*, Vol. 11, DOI 10.1016/j.cscm.2019.e00234, Journal IF 4.934, 2019
5. Zatloukalova, J., Dewynter-Marty, V., Zatloukal, J., Kolar, K., Hlavac, Z., Guillot, W., Konvalinka, P.: Investigation of radiolysis in cement pastes immobilizing simulated evaporator concentrates, *Annals of nuclear energy*, Vol. 151, DOI 10.1016/j.anucene.2020.107901, Journal IF 1.810, 2021

Selected projects

1. Konvalinka, P.: Experimental development of special kind of cementitious composite used for 3 robotic processing, project INTER-EXCELLENCE MŠMT, 2019-2022
2. Konvalinka, P.: Technology for continuous storing of nonrigid radioactive waste, project TA ČR THETA, 2018-2024
3. Konvalinka, P.: Targeted electromagnetical orientation of spreaded fibres for optimal resilience of concrete structures, project GA ČR, 2023-2025
4. Zatloukal, J. Konvalinka, P.: Universal transportation casing with secured structure to transportation of radioactive waste, including nonrigid ones, project TA ČR, 2023-2025
5. Zatloukal, J. Konvalinka, P.: System for longlife monitoring of behavior of degradation processes in engineering structures, project TA ČR THETA, 2019-2021

Selected applications

1. Konvalinka, P. – Máca, P. – Sovják, R.: High Strength Cement Based Composite, *Patent, Industrial Property Office No.: 305 168, 2015.*
2. Fornůsek, J. – Konvalinka, P. – Máca, P. – Maršík, V. – Sovják, R. – Vavřiník, T. – Zatloukal, J.: Universal Testing Equipment for Determining the Mechanical Properties, Response and Damage of Advanced Composite Materials in High Deformation Speed, *Patent, Industrial Property Office No.: 305 246, 2015.*
3. Litoš, J. – Konvalinka, P. – Sovják, R. – Záruba-Pfeffermann, J. – Štemberk, P – Čítek, D. – Huňka, P. – Bílý, V.: Prefabrication for Realization of Building Concrete Highways, *Patent, Industrial Property Office No.: 304 730, 2014.*
4. Zatloukal, J. - Sovják, R. - Heinrich, P. - Máca, P. - Konvalinka, P.: Device for Determination of Working Diagram of Land Anchor, *Patent, Industrial Property Office No.: 302 722, 2011.*
5. Kolář, K. - Bažantová, Z. - Konvalinka, P.: Multifunctional premixed silicate composite, *patent and certified technology, Industrial Property Office No.: 11000, 2015, sold license.*

Cooperation with foreign partners

1. Technical University Dresden, Germany (prof. Manfred Curbach) – cooperation over the exchange of academic staff – Ph.D. student Petr Máca is currently working for a 3 year contract as a scientist at the Department of Building Structures, TU Dresden.
2. Oregon State University in Corvallis, U.S.A. (prof. Jason Ideker) – cooperation over the bilateral project Development of cement composite used for 3D robotics operation (2019 – 2021)
3. Technical University of Agriculture and Technology in Tokyo, Japan (prof. Masaki Nakagawa) – cooperation over the exchange of academic staff – Ph.D. student Marcel Jogl is currently working for a year as a scientist at the Department of Material Science.
4. Agriculture and Mechanical University College Station, U.S.A. (prof. Dan Zollinger) – cooperation over the RILEM committee TC 207 Nondestructive testing of concrete.
5. Technical University Delft, Netherlands (prof. Wouter Schroyers) – cooperation over the NORM4BUILDING action over the waste management and standardization of using the waste materials, HORIZON 2020 project.

Prague, May 1st, 2023