

*Gratias agimus tibi,*  
**Brumovský**



NUCLEAR  
RESEARCH  
INSTITUTE

**ÚJV Řež thanks to Milan Brumovský  
on the occasion of his anniversary**

*Gratias agimus tibi,*

## RNDr. Milan Brumovský, CSc.

### NUCLEAR PHYSICS, A HOBBY SINCE SCHOOL YEARS

Milan Brumovský was born on 14 October 1935 in Bátorovce, Slovakia. He spent his school and student years in Teplice, Bohemia, where he also took his school-leaving examination in 1953. He continued his studies at the Faculty of Mathematics and Physics of Charles University in Prague where he graduated in Nuclear Physics in 1958. In 1970, he was awarded the scientific degree of *candidatus scientiarum* (abbrev. CSc., equivalent to PhD in English-speaking countries - translator's note) in physical and mathematical sciences in the field of Experimental Physics.

### FROM THE FIRST REACTORS TO PLANT LIFE MANAGEMENT

As a graduate, he joined ŠKODA Plzeň, the then Nuclear Power Plant Construction Factory. Since the beginning of his career, he has focused mainly on the material features of nuclear reactors. Initially in the research of materials and strength for the pressure vessel of the first reactor A1, later also for the production of WWER 440 and 1000 reactors. He gradually worked his way up to theoretical and experimental tasks which he addressed from the position of researcher and later also scientist. Thanks to this, he gained a broad knowledge of technical issues of nuclear energy, especially in interdisciplinary fields related to the application of nuclear physics, solid state physics, physical metallurgy, limit states, and strength. Then, he applied this comprehensive knowledge in addressing challenging tasks associated with the production and construction of individual units of nuclear power plants in the then Czechoslovakia. He has made a significant contribution to the research, implementation and successful use of fracture mechanics in assessing the integrity and service life of nuclear power plant components. During the production of WWER reactors at ŠKODA Plzeň, he regularly dealt with the assessment of various



problems in the production of pressure vessels. Since 1993, Dr. Brumovský has been working for ÚJV Řež, a. s. (a successor to the Institute of Nuclear Research in Řež) where he continues to address the ageing of components of operating NPP units within the Integrity and Technical Engineering Division.

### A SURVEILLANCE PROGRAM - KEY TO NUCLEAR SAFETY

Dr. Brumovský is one of the founders of a modernized „surveillance program“ for assessing the condition of pressure vessels in the reactors of Units 1 and 2 of the Temelín power plant. It uses the latest knowledge in the field of radiation damage to the material of pressure vessels of nuclear reactors. The program enables continuous monitoring of the changes in the material properties of the reactor pressure vessel which have a major impact on the safety of operation and life of the entire nuclear power plant complex. The surveillance program is also an important part of the assessment of the condition of the Temelín power plant within the measures of the so-called Melk Protocol. The proven concept of this surveillance program was also applied, for example, by Russian specialists to their new WWER reactor projects.

### IN NATIONAL AND INTERNATIONAL INSTITUTIONS

Throughout his entire working life, Milan Brumovský has been drawing on his experience in high-profile expert activities both at national and international levels. He has worked and still works for the International

*“I have been working in the field of assessment of nuclear power plant materials for almost fifteen years, and for the whole time, Milan Brumovský has been my huge source of experience and inexhaustible energy while inspiring me with his ability to stay on top of things. In the future, I would be honoured if I were a similar inspiration for my colleagues.”*

*Ing. Radim Kopřiva, Ph.D.*

*"Wherever in the world a person in the community of experts in the management of nuclear power plant ageing and materials mentions that he/she is from ÚJV Řež, everyone immediately responds to the name of Milan Brumovský. He is a world-renowned expert and is building the brand of ÚJV Řež in a unique way."*

*Ing. Jan Wandrol*

Atomic Energy Agency in Vienna (IAEA) and many other organizations in the nuclear field. Since the 1980s, he has been the Czech representative of the IAEA International Working Group on Lifetime Management of Nuclear Power Plants and a representative in Ageing Management European Strategy. He holds the record for Czech participation in the work of the specialized International Group on Radiation Damage Mechanisms in Pressure Vessel Steels. For many years, he has been involved in the activities of ASME (American Society of Mechanical Engineers) and co-organized technical conferences ASME Pressure Vessels & Piping. He is also a long-time member of the Committee for Reactor Materials at the American Society for Testing Materials (ASTM International) where he successfully participated in the adoption of a new technical standard for using the test method of a miniaturized test specimen in the form of thin sheets last year. He is the author or co-author of at least seven other standards for testing materials and assessing the service life of nuclear power plant equipment. He is the initiator of the European project VERLIFE-Lifetime assessment of components in WWER nuclear power plants. He chairs the fourth section of the Normative Technical Documentation of the Association of Mechanical Engineers of the Czech Republic. And, of course, he also cooperates with the State Office for Nuclear Safety of the Czech Republic.

#### **AUTHOR AND TEACHER**

Extensive publishing activities of RNDr. Milan Brumovský include more than 300 articles, papers and other expert works for Czech and international platforms. He is also a co-author of a number of IAEA publications in the field of radiation damage to NPP equipment materials, ageing and ageing control of NPP equipment, and assessment of the integrity of NPP equipment.

Dr. Brumovský has been willingly and continuously passing on his experience to younger colleagues throughout his career. As part of his expert activities, this was for example for IAEA research projects in CNEA

Argentina, ININ Mexico, CDTN Brazil, AEC Bangladesh. He also works as a lecturer at IAEA professional thematic seminars. In 2002-2005, he repeatedly visited the Joint Research Centre - the Institute for Energy in Petten, the Netherlands.

#### **AWARDS**

Of course, Milan Brumovský's contribution to the development of the safety of nuclear reactors does not go unnoticed. In 1985, he received the medal of A. A. Blagonravov (Academy of Sciences of the USSR) for his work in the field of safety of reactor pressure vessels, in 1990 he was awarded the medal of Ch. Eichner (French Societe de Metallurgie et des Materiaux and French Commission Nationale de Energie Atomique) for his work in the study of reactor pressure vessels. He also holds two medals of Slovenské elektrárny from 1998 - the silver medal of Slovenské elektrárny for the auspices of the safety of operation of pressure vessels of Mochovce NPP reactors and the medal of A. Stodola for working in the study of pressure vessels of nuclear power plant reactors in Slovakia. He holds significant awards from ASME from 2009 and 2010. In 2017, he received an individual ČEZAR award within ČEZ Group.

#### **UNCEASING ENTHUSIASM**

Milan Brumovský continues to devote himself to scientific, publishing and educational work even today when many of his peers are enjoying their retirement. He is still active on the Czech and foreign professional scene and passes on his extensive knowledge of the topic to younger colleagues within ÚJV Řež. For his jubilee this year, we wish him further achievements in his working and personal life and that his wife and sons with their families spend as much time as possible together.



*"Milan Brumovský moved to ÚJV Řež from Škoda JS when we were building the institute after privatization. It was a difficult time, we did not have enough experts who would have experience in what needs to be known and checked computationally and experimentally so that the result of the work is acceptable for ČEZ, SE and other industrial partners. Milan Brumovský knew this and was also able to pass on his knowledge to others."*

*Ing. Jiří Žďárek, CSc.*



**RNDr. Milan Brumovský, CSc.**

*A world-renowned personality in contemporary nuclear energy, one of the founders of modern methods of life management of reactor pressure vessels.*

**Born:** October 14, 1935 in Bátovce, Slovakia

**Study:** Faculty of Mathematics and Physics, Charles University (Nuclear Physics)

**Career:** Nuclear Power Plant Construction Factory (Škoda Plzeň)  
International Atomic Energy Agency in Vienna (IAEA)  
ÚJV Řež, a. s., Integrity and Technical Engineering Division

**Awards:** 1985 – the medal of A. A. Blagonravov (USSR)  
1990 – the medal Ch. Eichner (France)  
1998 – the silver medal of Slovak Power Plants (Slovakia)  
1998 – the medal of A. Stodola (Slovakia)  
2009-2010 – the American ASME awards  
2017 – the ČEZAR award (individual ČEZ award)