





# Fukuoka-Vienna JOINT SYMPOSIUM Toward Carbon Neutrality 2024

---

 2<sup>nd</sup> September 2024

 University of Natural Resources and Life Sciences, Vienna, Austria  
Institute of Physics and Materials Science



# About the Symposium

The Fukuoka-Vienna Joint Symposium Toward Carbon Neutrality 2024 is an inaugural joint symposium organized by Fukuoka University and BOKU University. It is intended to provide a platform for scientists, young researchers and students in the field of materials science to present and discuss their latest results and achievements.

Our mission is to contribute to carbon neutrality from the perspective of material strength. This symposium is a forum for discussing a wide range of topics, including fundamental and applied studies on the strength of advanced material, innovative testing techniques, environmental degradation and hydrogen-assisted fracture, analytical and numerical modeling, additively manufacturing, etc. Special emphasis is placed on fatigue properties and defect tolerance under various cyclic loading conditions.

## Venue



Franz-Schwackhöfer-Haus  
SCHW-SR10  
BOKU University  
Peter-Jordan-Str. 82  
1190 Vienna, Austria  
[Navi](#)

## Organizing Committee



Prof.  
**Junichiro Yamabe**



Dr.  
**Takashi Matsuo**



Dr.  
**Bernd Schönbauer**



Prof.  
**Herwig Mayer**



**Fukuoka University**  
Department of Mechanical Engineering




**University of Natural Resources and  
Life Sciences, Vienna**  
Institute of Physics and Materials Science

## Contact

**Dr. Takashi Matsuo**


Fukuoka University  
Department of Mechanical Engineering  
8-19-1, Nanakuma, Jonan-ku, Fukuoka, Japan

 +81-92-871-6631

 [tmatsuo@fukuoka-u.ac.jp](mailto:tmatsuo@fukuoka-u.ac.jp)

**Dr. Bernd Schönbauer**

BOKU University  
Institute of Physics and Materials Science  
Peter-Jordan-Str. 82, 1190 Vienna, Austria

 + 43-1-47654-89216

 [bernd.schoenbauer@boku.ac.at](mailto:bernd.schoenbauer@boku.ac.at)

# Program

9:00 – 9:10 **Welcome** *Christian Obinger, Vice Rector for Research and Innovation of BOKU University*  
*Helga Lichtenegger, Head of the Institute of Physics and Materials Science*

## **Morning Session 1** Chair: *Hisao Matsunaga*

9:10 – 9:40 Recent research at Fukuoka University; *Junichiro Yamabe, Masahiro Endo, Takashi Matsuo*

9:40 – 10:10 Recent research at BOKU University; *Bernd Schönbauer, Michael Fitzka, Herwig Mayer*

10:10 – 10:40 **Coffee Break**

## **Morning Session 2** Chair: *Bernd Schönbauer*

10:40 – 11:10 Recent research at Kyushu University; *Hisao Matsunaga*

11:10 – 11:40 Recent research at the University of Oulu; *Sumit Ghosh, Sakari Pallaspuuro*

11:40 – 12:00 The effect of over- and underloads on fatigue limit  
*Kimmo Kärkkäinen (Oulu University)*

12:00 – 12:45 **IPM Lab Tour**

12:45 – 14:00 **Lunch Break**

## **Afternoon Session 1** Chair: *Sumit Ghosh*

14:00 – 14:15 Hydrogen compatibility evaluation of Cr-Mo steel with four-point bending under continuous circulation H-charging  
*Kosuke Toyota (Fukuoka University)*

14:15 – 14:30 Investigation of differences in hydrogen embrittlement behavior between ferritic ductile cast iron and carbon steel  
*Yudai Kuga (Fukuoka University)*

# Program

14:30 – 14:45 Effect of hydrogen and small defects on fatigue properties of cold-rolled, metastable austenitic stainless steels  
*Kento Hashiguchi (Fukuoka University)*

14:45 – 15:00 Hydrogen effect on fatigue properties of Cu-Al-Ni-Fe-Mn cast alloy  
*Ren Yoshimoto (Fukuoka University)*

15:00 – 15:15 Tensile ductility of additively manufactured 17-4 PH steel in presence of hydrogen  
*Soma Kato (Fukuoka University)*

15:15 – 15:45 **Coffee Break**

**Afternoon Session 2** Chair: *Takashi Matsuo*

15:45 – 16:00 Influence of rolling direction on the fatigue properties of high-strength sheet steel  
*Christina Mamagkinidou (BOKU University)*

16:00 – 16:15 Dominating factor of the fatigue limit of a beryllium copper alloy  
*Takuma Kawahara (Fukuoka University)*

16:15 – 16:30 High-cycle fatigue properties and fracture surface formation mechanism of Al-Si-Mg cast aluminum alloy  
*Shohei Matsuda (Fukuoka University)*

16:30 – 16:45 A prediction method for the fatigue strength of metals containing small defects under fully-reversed torsion  
*Haru Fujishima (Fukuoka University)*

16:45 – 17:05 Defect sensitivity of high-strength steel 42CrMo<sub>4</sub> in the high and very high cycle fatigue regime  
*Suraj More (BOKU University)*

17:05 **Closing remarks** *Masahiro Endo (Fukuoka University)*

18:00 **Symposium Dinner** at [Herbeck – Neue Gastwirtschaft](#)