

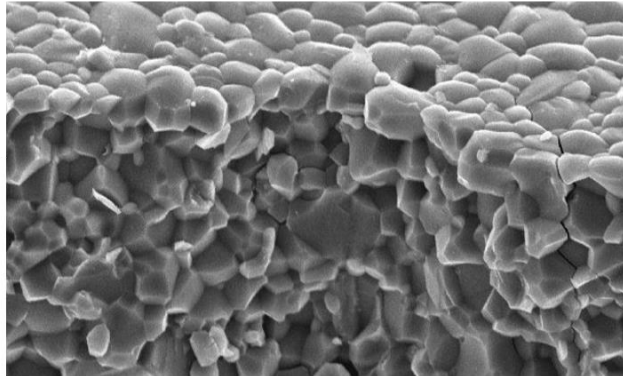
FAC VII

Fracture of Advanced Ceramics and Glasses

Fractography, Fracture Mechanics and Fracture Testing

September, 3th – 5th, 2023

Leoben, Austria



PROGRAM

Sunday, September 3rd, 2023

17:00 – 19:00 Registration

17:00 – 21:00 Welcome Reception



Montanuniversität Leoben
Erzherzog Johann Trakt
Franz Josef-Straße 18
A-8700 Leoben

Monday, September 4th, 2023

08:15 Registration

09:00 – 09:15 **Welcome & Opening**

R. Bermejo

T. Lube, J. Dusza

Fractography

Chair: R. Danzer

09:15 – 10:00 Fractography of high entropy ceramics

J. Dusza

10:00 – 10:25 Fractography of additive manufactured ceramics

T. Lube, W. Harrer,
S. Cano-Cano

10:25 – 10:50 A role of graphene micro/nano platelets on strengthening and toughening mechanisms of titanium diboride-silicon carbide ceramics

A. Kovalčíková, P. Tatarko,
Z. Chlup, R. Sedlák, E.
Múdra, J. Dusza

10:50 – 11:15 **Coffee break**

Applications

Chair: R. Bermejo

11:15 – 11:40 Silicon nitride in bearing applications

O. Schöppl, C. Bleicher

11:40 – 12:05 Ceramic materials as an alternative for conventional spark plug electrodes

W. Harrer, M. Gruber,
V. Melcher, A. Tilz

12:05 – 12:30 How contamination and cone damage affect the safety of ceramic femoral heads

M. Liebelt, T. Oberbach,
C. Witt, K. Hans

12:30 – 13:30 Lunch

Microstructure & Properties I: Micromechanics Chair: M. Gruber

- 13:30 – 13:55 The effect of Ti incorporation on the fracture toughness and strength of (Hf-Ta-Zr-Nb)C high-entropy carbide microcantilevers T. Csanádi, M. Vojtko, P. Tatarko, M.J. Reece, J. Dusza
- 13:55 – 14:20 Micromechanical properties of reactive DCMS and HiTUS multicomponent TiNbVTaZrHf-N coatings F. Lofaj, T. Csanádi, L. Kvetková, P. Hviščová, M. Kabátová
- 14:20 – 14:45 Strength of grains and grain boundaries of dual-phase high-entropy ultra-high temperature ceramics A. Naughton-Duszová, M. Hrubovčáková, M. Vojtko, D. Medved', P. Hvizdoš, T. Csanádi
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14:45 – 15:10 Coffee break

Microstructure & Properties II Chair: A. Kovalčíková

- 15:10 – 15:35 BaTiO₃/ZrO₂ laminates for energy harvesting produced by EPD and SPS H. Hadraba, D. Drdlík, V. Mařák, Z. Chlup
- 15:35 – 16:00 Effect of reaction phases on the fracture behaviour in the BaTiO₃ composites Z. Chlup, H. Hadraba, L. Bertolla, D. Drdlík, V. Mařák, O. Ševeček, F. Šiška, J. Erhart, P. Tofel, K. Maca
- 16:00 – 16:25 The effect of hybrid reinforcement in low-water metakaolin-based geopolymers on fracture behaviour L. Bertolla, P. Macová, G. Taveri, A. Strachota, Z. Chlup
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16:35 Bus Transfer from conference location to Göss

17:00 – 22:00 Social program & Dinner

22:00 Bus Transfer Göss- City center

Tuesday, September 5th, 2023

08:30 Registration

Strength & Fracture Toughness Testing

Chair: T. Lube

09:00 – 09:45	Strength testing of special glass specimens	<u>P. Supancic</u> , F. Maurer, R. Danzer
09:45 – 10:10	In-situ biaxial strength testing through X-ray tomography	<u>M. Staudacher</u> , J. Adrien, G. Pinzon, E. Maire, T. Lube, J. Chevalier
10:10 – 10:35	On the sensitivity of standards' validity constraints in the SEPB method	<u>R. Belli</u> , A. Schellenberger, U. Lohbauer
10:35 – 10:40	Comparison between CNB and SCF methods to measure the fracture toughness of $\text{Li}_2\text{O}\cdot\text{SiO}_2$ glasses (poster presentation)	<u>D. C. Niero Fabris</u> , S. Abdelmaseh, D. de Ligny, M. R. Cicconi, R. Belli, U. Lohbauer

10:40 – 11:10 Coffee break

Strength, Defects & Statistics

Chair: t.b.d.

11:10 – 11:35	Strength of WC-Co hard metals as a function of microstructure and the effectively loaded volume	<u>T. Klünsner</u> , P. Supancic, M. Jonke, C. Gettinger, L. Walch, S. Wurster, W. Harrer, M. Jenko, J. Glätzle, R. Barbist, R. Pippan, T. Lube, R. Ebner
11:35 – 12:00	Investigation of zirconia powder used to fabricate CAD/CAM blocks	<u>R.M. Pereira</u> , T.M.B. Campos, G.P. Thim, B. Mieller, U. Lohbauer, R. Belli
12:00 – 12:25	Unveiling the Strength and Fracture Characteristics of LiTaO_3 and LiNbO_3 Single Crystals for Advanced Mobile Communication Applications	<u>M. Gruber</u> , P. Supancic, I. Kraveva, R. Bermejo

12:25 – 13:30 Lunch

Contact damage, modelling

Chair: Z. Chlup

13:30 – 13:55	Generating Sharp Contact Damage that Simulates Cover Glass Failure in the Field	<u>K. Chambliss</u> , K. Reiman
13:55 – 14:20	Contact damage resistance of multilayer alumina ceramics with tailored microstructures	<u>A. Jabr</u> , J. Schlacher, R. Bermejo
14:20 – 14:45	Understanding Crack Initiation in Ceramic Materials using Finite Fracture Mechanics	<u>R. Papšík</u> , O. Ševeček, R. Bermejo
14:45 – 15:10	Analysis of residual stresses in BaTiO ₃ – Al ₂ O ₃ composite	T. Vítek, O. Ševeček, <u>F. Šiška</u> , Z. Chlup, D. Drdlík, V. Mařák, K. Maca, E. Virágová, J. Zálešák
15:10 – 15:35	Macro- and micro-scale fracture behaviour of textured alumina ceramics	<u>J. Schlacher</u> , Z. Chlup, T. Csanádi, A. Jabr, A. K. Hofer, R. Bermejo

15:35 – 15:45	Closing	R. Danzer
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16:00	Lab-Tour ISFK ② & refreshments	for those who are interested please register at the registration desk
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Committees

Organizing Committee

T. Lube, J. Dusza, J. Chevalier

Administration

M. Gruber, S. Kohlbacher, J. Sifkovits, A. Kovalčíková

International Advisory Board FAC VII 2023

Austria – R. Danzer, R. Bermejo

China – Ch. Zhang

Czech Republic – K. Maca

Estonia – I. Hussainova

France – H. Reveron, F. Rossignol

Germany – G. Schneider, U. Lohbauer

Hungary – Cs. Balázs

Japan – J. Tatami

Poland – Z. Pedzich, H. M. Grabowy

Serbia – V. Srdič

Slovakia – P. Šajgalík, P. Hvizdoš

Slovenia – A. Kocjan

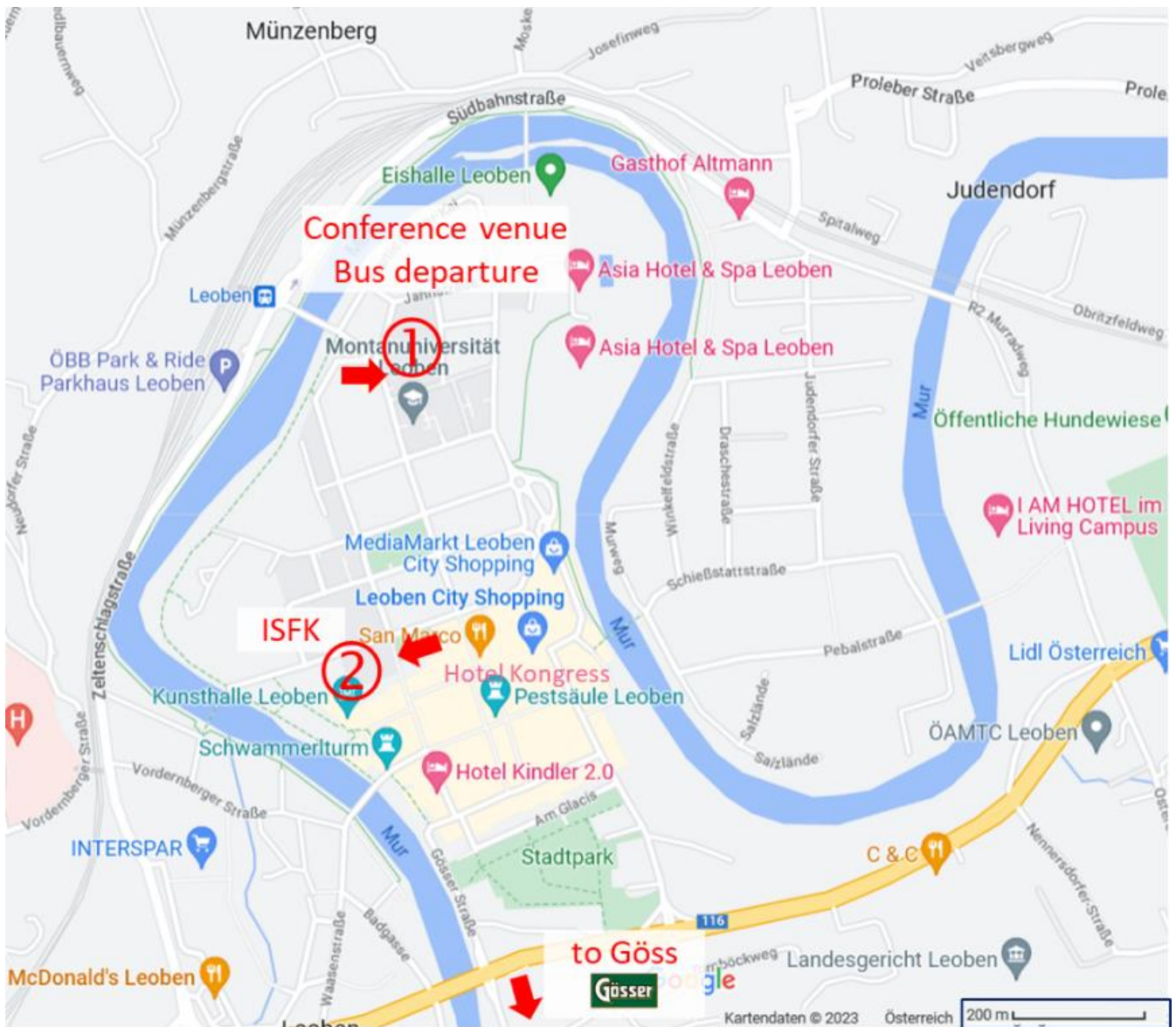
Spain – C. Baudin, M. Belmonte

Switzerland – S. Scherer

UK – R. Morrell, M.J. Reece

USA – W. G. Fahrenholtz

Orientation – Leoben City center



① Conference Venue – Montanuniversität Leoben, Erzherzog-Johann Trakt
Franz Josef-Strasse 18



② ISFK – Peter Tunner-Strasse 5, top floor



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Chair of Structural and Functional Ceramics, Department of Materials Science
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