



# 20 | PLANSEE SEMINAR 2022

International Conference on  
Refractory Metals and Hard Materials

Reutte/Austria

May 30<sup>th</sup> – June 3<sup>rd</sup>, 2022

Second Circular and Call for Abstracts

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Karlheinz Wex

## Local Organizing Committee

Heinrich Kestler, Uwe Schleinkofer, Andreas Pilz

# Message from the Organizers

We are delighted to announce that the 20<sup>th</sup> Plansee Seminar will take place on the premises of the Plansee Group in Reutte, Austria from May 30<sup>th</sup> to June 3<sup>rd</sup>, 2022.

After postponing the Seminar by a full year due to the COVID crisis we are still committed to continuing the tradition of a highly successful series of conferences. From the onset in 1952 they have been regarded as a global forum for the technical and scientific P/M community to exchange ideas and keep up with the latest innovations and market trends in the fields of Refractory Metals and Hard Materials.

It is our aim to organize a legal, safe, and hygienic conference which will provide ample opportunity for gaining insights into all aspects of this important class of materials. Various topics from materials science to the latest achievements in extractive metallurgy, manufacturing technology, industrial applications and recycling will be covered.

Moreover, the 20<sup>th</sup> Plansee Seminar will be an ideal platform to foster personal contact between industry and academia. Practitioners and scientists alike, both experienced and novice, are cordially invited to participate. The Plansee Seminar is the ideal event to augment your knowledge by visiting lectures from renowned experts, attending the poster sessions, and participating in lively discussions.

We are looking forward to meeting you in Reutte for this unique opportunity to exchange knowledge and experience with experts and professionals from academia and all branches of the industry.

It will be a special pleasure for us to welcome you to Reutte in early summer 2022 and to also celebrate the 20<sup>th</sup> Plansee Seminar!



Karlheinz Wex

Chairman of the Plansee Seminar



Heinrich Kestler

Secretary of the Plansee Seminar

# Scope of the 20<sup>th</sup> Plansee Seminar

The presentations at the 20<sup>th</sup> Plansee Seminar will include all areas where products based on **Refractory Metals and Hard Materials** play an important role, or where they are promising alternatives to present material solutions.

Applications, materials, processes, digital transformation, and testing methods will be addressed in key-note lectures and contributed papers. The latter will be presented in oral and poster sessions.

## Preliminary Program

	Sunday 29 May	Monday 30 May	Tuesday 31 May	Wednesday 1 June	Thursday 2 June	Friday 3 June
Morning		Opening	Refractory Metals	Hard Materials	Refractory Metals	Hard Materials
			General P/M Technology	General P/M Technology	General P/M Technology	Refractory Metals
Afternoon		General P/M Technology	Hard Materials	Refractory Metals	Hard Materials	Farewell Address
		Refractory Metals	Hard Materials	Refractory Metals	Hard Materials	
Evening	Welcome Reception		Poster Evening		Conference Dinner	

# Call for Papers

Authors are invited to submit abstracts for papers to be presented either as lecture or poster. All papers must contain unpublished results that are of current interest. To allow for evaluation by the Scientific Committee, the abstracts (max. 175 words) should clearly outline the aim of the work and the methods employed, as well as the major results and conclusions. The conference language will be English; thus, all presentations and papers must be submitted in English.

Please subscribe and submit your abstract via the online submission system at the Seminar website [www.plansee-seminar.com](http://www.plansee-seminar.com).

All abstracts will be reviewed and allocated to oral or poster sessions by the Scientific Committee. You will be notified about acceptance of your paper by December 16, 2021; guidelines for manuscript preparation will be provided.

## Important deadlines

Submission of abstracts:	September 26, 2021
Notification of acceptance:	December 16, 2021
Submission of full papers:	March 4, 2022

## Proceedings

All papers of oral and poster sessions submitted by March 4, 2022 will be distributed on a USB flash drive at the beginning of the Seminar. The conference package will also include a printed abstract booklet. Late papers will be available distributed electronically after the Seminar in September 2022.

# Topics of the 20<sup>th</sup> Plansee Seminar

## Refractory Metals and Composites

### 1. Applications

- |                          |   |
|--------------------------|---|
| 1.1. Transportation      | 1.7. Chemical engineering                   |
| 1.2. Electronics         | 1.8. Coating technology                     |
| 1.3. Thermal management  | 1.9. Joining technology                     |
| 1.4. Lighting technology | 1.10. Metal, glass, and ceramics production |
| 1.5. Medical technology  | 1.11. High temperature furnaces and devices |
| 1.6. Power engineering   | 1.12. New areas                             |

### 2. Materials

- 2.1. Refractory metals and alloys, composites, laminates, and functionally graded materials
- 2.2. High entropy alloys (HEA) based on refractory metals
- 2.3. Refractory metals based intermetallics

### 3. Powder

- 3.1. Powder production and processes
- 3.2. Extractive metallurgy
- 3.3. Recycling

### 4. P/M processes

- |   |   |
|---|---|
| 4.1. Mixing, alloying, and doping                 | 4.5. Hot isostatic pressing, hot pressing, and spark plasma sintering |
| 4.2. Compaction, forming, and near net shaping    | 4.6. New consolidation processes                                      |
| 4.3. Additive manufacturing and rapid prototyping | 4.7. Surface engineering and coating                                  |
| 4.4. Sintering and infiltration                   | 4.8. Joining  |

### 5. Simulation and Modeling

- |                                   |   |
|-----------------------------------|---|
| 5.1. Materials and microstructure | 5.5. Constitutive and multiscale modeling |
| 5.2. Stresses and deformation     | 5.6. Components and devices               |
| 5.3. Failure and reliability      | 5.7. Data processing                      |
| 5.4. Oxidation and corrosion      |   |

### 6. Characterization and Testing

- 6.1. Microstructure
- 6.2. 3D and nanoscale characterization
- 6.3. Mechanical and nondestructive inspection

# Topics of the 20<sup>th</sup> Plansee Seminar

P/M Hard Materials

## 7. Applications

- |   |                              |
|---|------------------------------|
| 7.1. Wear parts   | 7.4. Chipless forming        |
| 7.2. Machining of metals, composites,<br>lightweight materials, wood, and stone | 7.5. Mining and construction |
| 7.3. Precision tooling  | 7.6. Joining technology      |
|   | 7.7. New areas               |

## 8. Materials

- 8.1. Hard compounds, binders, dopants, impurities
- 8.2. New alloying concepts and material design
- 8.3. Cermets
- 8.4. New alternatives to hard metals

## 9. Powders and P/M processes

- 9.1. Powder production and processing
- 9.2. Innovative production processes
- 9.3. Ultrafine and nano-scaled powders and microstructures
- 9.4. Additive manufacturing and rapid prototyping
- 9.5. Novel compaction and sintering technologies
- 9.6. Safety, environmental, and recycling aspects

## 10. Surface engineering

- |  |                                 |
|--|---------------------------------|
| 10.1. Coating materials and processes    | 10.4. Self-lubricating coatings |
| 10.2. Coating/substrate interactions     | 10.5. Surface processing        |
| 10.3. Gradient and multilayer structures |                                 |

## 11. Simulation and Modeling

- |   |                              |
|---|------------------------------|
| 11.1. Powders and granules                  | 11.4. Components and devices |
| 11.2. Mechanical properties and reliability | 11.5. Data processing        |
| 11.3. Constitutive and multiscale modeling  |                              |

## 12. Characterization and testing

- 12.1. Microstructure
- 12.2. Surface characterization (coatings, interfaces, residual stresses)
- 12.3. Friction and wear testing
- 12.4. 3D and nanoscale characterization
- 12.5. Novel methods of analysis and testing
- 12.6. Mechanical testing and nondestructive testing

# Important Information

## Registration

Online registration via [www.plansee-seminar.com](http://www.plansee-seminar.com) is highly recommended and will open in December 2021. On-site registration will be possible only within the limitation to the maximum number of participants. It is recommended to contact the Seminar Office beforehand. Please note that registration is also required for authors.

## Health – COVID-19 regulation

Health and safety of the participants of the Plansee Seminar is our highest priority, therefore we will follow all regulations made by the EU-commission and by the Austrian government.

## Conference fees

The conference fee includes admission to the technical sessions, proceedings, snacks and refreshments during the welcome reception and breaks, the social evening, and the conference dinner. On-site payment is only possible by credit card. Registration is only valid upon receipt of payment.

Early registration (before March 31, 2022)	€ 1,490
Standard registration	€ 1,690
Presenting author	€ 1,090
Student	€ 390
Conference dinner (accompanying persons)	€ 60

The reduced fee for presenting authors can be granted only if the paper is submitted by March 4, 2022. Space for the conference dinner is limited, so please register accompanying persons early.

The conference fees include 20% VAT (VAT registration number ATU 66028167).



## **General conditions / Cancellation**

Your registration is regarded as binding agreement to the conditions stated in this circular. Substitutes will be accepted provided that advance notice is given in writing.

The following charges will apply for cancellations received by:

March 31, 2022	€ 400
May 1, 2022	€ 1,000

No refund of the conference fee will be made after May 1, 2022.

## **Registration desk opening hours**

Sunday, May 29, 2022	2 pm – 10 pm
Monday – Thursday, May 30 – June 2, 2022	8 am – 6 pm
Friday, June 3, 2022	8 am – 1 pm

## **Venue**

The Plansee Seminar will be held on the premises of the Plansee Group in Reutte, Austria. Reutte is a town of 6,400 people, located at an altitude of 860 m in the valley of the river Lech in northern Tyrol, about 90 km north-west of Innsbruck and just a few kilometers south of Füssen, Bavaria.

Daytime temperatures in June generally range between 18 and 26°C, evenings and nights can be chilly.

## **Travel**

The nearest airports are Innsbruck and Munich. Reutte may be reached by train (approximately 3 hours from Munich or Innsbruck). Detailed travel information will be made available on [www.plansee-seminar.com](http://www.plansee-seminar.com).

Courtesy bus services from and to the airports and the main railway stations of Munich and Innsbruck will be arranged on Sunday, May 29 and on Friday, June 3, 2022. Also, daily bus transportation from and to selected hotels will be provided. Schedules will be announced in time.

## **Visa**

Participants should be aware that a visa will be required for many countries outside the European Union to travel into Austria. Please make sure that you apply for a uniform “Schengen” visa, which allows you to arrive in and leave from Europe also outside of Austria. For detailed information please contact an Austrian embassy or consulate.

If you require an official letter of invitation for your visa application, please contact the Seminar Office in time. Letters of invitation will only be issued to invited speakers or to participants who have registered and paid the conference fee. However, this invitation implies no obligation, financial or otherwise, by Plansee.

## **Accommodation**

There are several hotels available in the Reutte area. A list of hotels which will be connected by the shuttle busses during the seminar week will be published on [www.plansee-seminar.com](http://www.plansee-seminar.com).

## **Social program**

Sunday, May 29, 2 pm – 8 pm	Welcome reception
Tuesday, May 31	Poster evening
Thursday, June 2	Conference dinner

For accompanying persons an excursion program will be arranged to places of interest in the vicinity of Reutte as well as in and around Innsbruck. All tours are accompanied by an English-speaking guide; rain protection and hiking boots are recommended.

## **Mobile App**

Participants will have access to an app for mobile devices. This app contains all information which is necessary for a smooth event, including short term program changes, bus schedules, and much more. It also offers the opportunity to set up a personalized program. The app will be available for both iOS and Android devices.

# Communication

This circular and more information on the Plansee Seminar will be made available in due time at [www.plansee-seminar.com](http://www.plansee-seminar.com). Updates will be communicated on this website and by e-mail to registered participants.

To ensure smooth communication, please e-mail us any corrections or changes of your address and/or affiliation. In case you should not have received this circular by mail but would like to receive upcoming information on the Plansee Seminar, please subscribe to the Seminar mailing list. Also, please pass on this circular to colleagues, and, if applicable, to your students.

## Contact

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### Imprint

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