

CSI | BREMEN
- GERMANY -



2024



7th CIRP Conference on SURFACE INTEGRITY

15TH TO 17TH MAY 2024

BREMEN - GERMANY



Leibniz-Institut für
Werkstofforientierte
Technologien

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7th CIRP CSI - Conference on Surface Integrity

Conference Booklet

Dear Colleagues,

In 2007, the International Academy for Production Engineering (CIRP) recognized the need for a broad exchange on the relationships between surface and subsurface characteristics and the functional performance of components: the CIRP Collaborative Working Group (CWG) on „Surface Integrity and Functional Performance of Components“ was established and chaired by Prof. I.S. Jawahir, Prof. E. Brinksmeier and Dr. R. M'Saoubi.

From 2008 to 2011, the relevance of the topic became evident in the CWG meetings, which were attended by an average of more than 70 participants. The presentations, discussions and an international round robin test made it clear early on that the scientific exchange needed to continue in order to achieve further progress. As a result, the CWG achieved two complementary outcomes: the 2011 CIRP Keynote Paper by Jawahir and colleagues, which summarizes the progress made to date, and the initiation of a CIRP-owned conference series on the topic, which aims to provide a continuous dialogue on new developments.

The first CIRP Conference on Surface Integrity (CSI) was organized by Prof. E. Brinksmeier and held in Bremen in early 2012. 118 participants from 18 countries marked the beginning of a series of conferences that were successfully held in Nottingham (UK), Charlotte (USA), Tianjin (China), Vitoria-Gasteiz (Spain; e-conference) and Lyon (France) with increasing numbers of participants.

On behalf of the Organizing Committee, we welcome you to the 7th CIRP Conference on Surface Integrity. The conference will serve as a platform for researchers from academia and industry to discuss recent developments, new findings and future needs in the field of Surface Integrity.

We are looking forward to exciting presentations and fruitful discussions.

Welcome back to Bremen!



Daniel Meyer

Chairmen of the
7th CIRP CSI



Bernhard Karpuschewski

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Welcome
to the
7th CIRP CSI 2024

Dear Participants,

„Moin“ as we say „hello“ here in northern Germany and welcome to the city of Bremen. We are thrilled to welcome you to the 7th CIRP CSI Conference. The team at the Leibniz-IWT worked nonstop to prepare an appealing program including:

A Welcome Event with Lab Tours at Leibniz-IWT - 14th May 2024:

Get to know each other at a visit of the Leibniz Institute for Materials Engineering IWT on May 14, 2024. Explore cutting-edge research facilities and gain firsthand insights into the latest innovations in surface integrity.

7th CIRP CSI Conference program - 15th to 17th May 2024:

During the conference a dynamic program featuring five inspiring presentations from leading experts in both science and industry awaits you. These presentations will highlight the latest advancements and challenges in areas such as the effects of different manufacturing processes on the surface and subsurface layer of materials, the simulation and modeling of surface integrity, surface engineering, and characterization methods.

Conference Dinner with International Show Event - 16th May 2024:

Join us for an unforgettable Conference Dinner featuring captivating international performances. Enjoy the discussions and collaborations in the company of colleagues and peers from around the globe.

We look forward to an enriching experience filled with knowledge exchange, networking, and memorable moments during the 7th CIRP CSI - Conference on Surface Integrity 2024.

The Organizing Committee



The CIRP CSI is supported by the following committees:

The Advisory Committee:

Ekkard Brinksmeier - GERMANY
Ibrahim S. Jawahir - USA
Rachid M'Saoubi - SWEDEN

The Steering Committee:

Ekkard Brinksmeier - GERMANY
Rachid M'Saoubi - SWEDEN
Matthew Davies - USA
Pedro Arrazola - SPAIN

Ibrahim S. Jawahir - USA
Dragos Axinte - UK
Fengzhou Fang - CHINA
Joël Rech - FRANCE

Chairmen of the 7th CIRP CSI:



Daniel Meyer



Bernhard Karpuschewski

Local organizing committee:



Matthias-A. Hettig



Marco Eich

The Members for the Scientific committee for the 7th CIRP are:

| | |
|----------------------|------------------------|
| Andreas Archenti | Bernhard Karpuschewski |
| Pedro Arrazola | Benjamin Kirsch |
| Helmi Attia | Andreas Klink |
| Dragos Axinte | Philip Koshy |
| David Barrenetxea | Peter Krajnik |
| Anthony Beaucamp | Bert Lauwers |
| Vikram Bedekar | Ismail Lazoglu |
| Thomas Bergs | Zhirong Liao |
| Rachele Bertolini | Sein Leung Soo |
| Dirk Biermann | Jean-Marc Linares |
| Friedrich Bleicher | Don A. Lucca |
| Ekkard Brinksmeier | Rachid M'Saoubi |
| Stefania Bruschi | Aitor Madariaga |
| Erhan Budak | Daniel Meyer |
| Alessandra Caggiano | Nikolaos Michailidis |
| Benny C.F. Cheung | Brigid Mullany |
| Cédric Courbon | Jose C. M. Outeiro |
| Eraldo Da Silva | Gérard Poulachon |
| Doriana D'Addona | Franci Pusavec |
| Matt Davies | Joël Rech |
| Berend Denkena | Oltmann Riemer |
| Klaus Dröder | Enrico Savio |
| François Ducobu | Volker Schulze |
| Christopher J. Evans | Jens Sölter |
| Andreas Fischer | Roberto Teti |
| Wit Grzesik | Guido Tosello |
| Han Haitjema | Domenico Umbrello |
| Carsten Heinzl | Petra Wiederkehr |
| Richard Hood | Jiwang Yan |
| Yasuhiro Kakinuma | Frederik Zanger |



The Leibniz Institute for materials engineering - IWT Bremen

The Leibniz-IWT represents for research in the field of new materials, new processes and optimised components. Our work is interdisciplinary, international and practical. The scientific questions in our institute range from the production of materials, such as powder production for additive manufacturing, to the analysis of the final machined components, for example high-precision gears. This is how we shape the requirements of tomorrow.

Research into highly stressed metallic structural materials has been carried out at the Leibniz Institute for Materials Engineering - IWT in Bremen since 1950. As a unique international feature, the Leibniz-IWT combines the three disciplines of materials engineering/material testing, process engineering and manufacturing technologies under one roof. This interdisciplinary cooperation enables the scientists to map and research overarching issues with particular practical relevance along the entire process chain. With a view to new materials, innovative processes and optimized components, the IWT is dedicated, among other things, to the research foci of additive manufacturing and hydrogen technologies.

Founded in 1951, the International Academy for Production Engineering, known by its French acronym CIRP, has been at the forefront of advancing modern production science and technology through international collaboration. With over 600 members worldwide, CIRP fosters a close-knit community by intentionally limiting its membership, facilitating informal scientific exchanges and personal connections.

While primarily an academic institution, CIRP warmly embraces industry involvement, boasting 170 corporate members who actively engage in research discussions and offer valuable insights into industrial needs and perspectives. Additionally, young researchers and invited members, particularly from underrepresented regions, enrich the diversity of the CIRP community. CIRP's overarching goals include promoting scientific research across various domains such as manufacturing processes, production equipment, automation, and product design.

The Chairmen of the Conference and the Local Organizing Committee would like to thank the CIRP President, the Council and the Liaison Committee, for supporting the proposal to have the 7th CIRP Conference on Surface Integrity (CSI) in Bremen. Special thanks go to the CIRP Office, which contributed to the organization of the CSI by practical advice and valuable information.

Through the publication of papers, reports, and organizing international conferences, CIRP disseminates technical knowledge and fosters collaboration on a global scale. With a vision aimed at fostering research and development within its diverse membership, CIRP aspires to contribute to environmentally sustainable global prosperity and societal well-being.

The organizational structure of CIRP, headed by an annually elected President, includes a Council and various committees dedicated to continuous improvement and adapting to the evolving landscape of manufacturing science and technology. CIRP's headquarters in Paris, staffed by permanent personnel, welcomes potential corporate members and interested parties to engage in CIRP publications and activities, furthering its mission of promoting excellence in production engineering.



**Keynote Speakers
of the
7th CIRP CSI 2024**

Prof. Fengzhou Fang

President of CIRP,

Universities of Dublin-Ireland and Tianjin-China



Professor Fengzhou Fang has been working in the fields of freeform optics design and manufacturing, bio-manufacturing, and ultra-precision machining and metrology since he became a faculty member at the university in 1982. He developed the theory of the three paradigms of manufacturing advancement, which identified atomic and close-to-atomic scale manufacturing as the fundamental technology of the new manufacturing paradigm, Manufacturing III. His contributions to micro/nano manufacturing and ultra-precision machining technologies, especially on the fundamentals of nanometric cutting, are widely adopted and referenced in new manufacturing processes. He has been elected Fellow of the

International Academy for Production Engineering (CIRP), the International Academy of Engineering and Technology (AET), the International Society for Nanomanufacturing (ISNM), and the Society of Manufacturing Engineers (SME). Professor Fang is a Member of the Royal Irish Academy (RIA), the current President of CIRP, the President of AET, and the Editor-in-Chief of Nanomanufacturing and Metrology.

Keynote: Surface Integrity in close to atomic scale manufacturing

Atomically smooth surfaces play a crucial role in improving the damage threshold of optical crystals. The exploration of new finishing processes at the atomic and close-to-atomic scale is expected to lead to breakthroughs in devices performance. Sesquioxide crystals are considered ideal for optical applications due to their low phonon energy, high thermal conductivity, high damage threshold, and high quantum efficiency. However, achieving a Damage-free finishing surface without subsurface damage is challenging due to the high hardness, brittleness, and low fracture toughness of sesquioxide laser crystals, limiting their applications. This keynote speech presents a novel process for atomic-level surface processing based on plasma-assisted etching (PaE).

Dr. André Walter

Chairman of the Board of Management Airbus GmbH & Airbus Aerostructures GmbH

André Walter is the Chairman of the Board of Management Airbus GmbH and Airbus Aerostructures GmbH. In this role he is in charge of leading the plants Hamburg, Stade, Nordenham and Bremen with more than 10.000 employees. Airbus Aerostructures is the backbone of Airbus in Germany for structural assembly and equipping. Until June 2022 André Walter was Head of Hamburg Plant and Industrial Site and Chairman of the Board of Management of Airbus Operations GmbH. He joined the Airbus management team in Hamburg on 1 April 2019. Prior to this, he was Head of Site and Plant of the Airbus site in Bremen for four years. In 2006, he moved to Airbus in Bremen and took over the management of the division for metallic materials and processes. In the following years, André Walter gained extensive experience at Airbus in various management positions in materials and process research. Before joining Airbus, André Walter was Technical Manager and Scientific Assistant at the Institute for Materials Science, University of Bremen. He studied mechanical engineering at the University of Hanover and has received his doctorate at the University of Bremen.



Keynote: Challenges and opportunities of improved (sub-) surface characteristics for ZEROe aircraft



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Prof. Marc Avila

Director of the Center of Applied Space Technology and Microgravity (ZARM), University of Bremen



Marc Avila studied Mathematics at the Universitat Autònoma de Barcelona and at the University of Glasgow and got his PhD in Applied Physics and Scientific Computing from the Universitat Politècnica de Catalunya in 2008. During his PhD, he was a research scholar at the Arizona State University and subsequently a postdoc at the Max-Planck-Institute for Dynamics and Self-Organization. Prior to becoming Professor of fluid mechanics at the University of Bremen, and Director of its Center of Applied Space Technology and Microgravity (ZARM), he was Professor at the University of Erlangen-Nuremberg. He received the Euromech Young Scientist Award in 2009 and the Richard-von-Mises Prize of

the GAMM in 2018 for his work on turbulent flows. As Director of ZARM he has established human space exploration as one of the institute’s focal points. In 2022, he cofounded the University of Bremen’s Humans on Mars initiative, which joins the University’s excellence in materials, process and production engineering with the emerging fields of space and communications engineering, as well as behavioral sciences, to research pathways toward a long-term sustainable exploration of Mars.

Keynote: Surface Integrity under scarce conditions when manufacturing on Mars



Prof. Bernhard Karpuschewski

Faculty of Production Engineering, University of Bremen

Prof. Bernhard Karpuschewski graduated from the University of Hannover, Germany. He received his Ph.D. degree in 1995 and worked as chief engineer at the Institute for Production Engineering and Machine Tools (IFW) until April 1999. From 1999 until 2000 he worked as Associate Professor at the Keio University, Yokohama (Japan). After that he was appointed as full professor for production engineering and head of the Laboratory for Production Technology and Organisation (PTO) at the Technical University of Delft (Netherlands), where he worked until March 2005. From April 2005 until August 2017 he was appointed as full professor for production engineering and managing director of the Institute for Production Technology and Quality Management (IFQ) at the Otto-von-Guericke-University in Magdeburg (Germany). Since September 2017 he is full professor for manufacturing technologies at the University of Bremen and Director of the Division Manufacturing Technology at the Leibniz Institute for Materials Engineering IWT, Bremen.



Keynote: Process Signature – Transfer of the concept to industrial applications

Surface layer properties are crucial for the performance of components. For function-oriented manufacturing, relevant properties are to be generated by an adequate selection and adjustment of manufacturing processes. In order to accomplish this in a resource-efficient manner, knowledge about the workpiece material's response to machining is required. Process Signatures contain correlations between internal material loads and resulting material modifications, thus allowing a deeper understanding of underlying mechanisms. In recent years, Process Signatures were successfully developed in fundamental scientific research. This keynote shows key steps for the transfer of the concept to specific industrial applications.

Prof. Jiwang Yan

Faculty of Science and Technology, Keio University, Tokio-Japan



Jiwang Yan received his Ph.D. from Tohoku University in 2000 and is currently Professor of Mechanical Engineering at Keio University, Japan since 2012, leading the Laboratory for Precision Machining and Nano Processing. He also serves as an adjunct Specially Appointed Professor at Tokyo Institute of Technology since 2017. His research areas include ultraprecision machining, micro/nano manufacturing, laser processing, nanomaterial and nanomechanics. As a principal investigator, he has led more than 20 nationally funded projects and over 70 joint research projects with industry. He has authored/co-authored 300+ peer-reviewed journal papers, given 150+ keynote/invited talks, and received 40+ awards for his

contribution in manufacturing. He is now executive director and chairman of publication sector of the Japan Society for Precision Engineering and board member of the Japan Society of Laser Technology. He is fellow of ISNM and member of CIRP, SME, JSME, JSPE, JSAP, JSAT, ASPE, and euspen. He also serves editorial boards for several journals such as International Journal of Machine Tool & Manufacture and International Journal of Extreme Manufacturing.

Keynote: Scale-bridging surface structuring for functional performance improvement of components

Micro-, nano- and meso-scale surface structures can dramatically alter the surface properties of materials and are useful for high-value manufacturing. In this talk, scale-bridging surface structuring technologies via mechanical, thermal, electrical, and optical processing will be focused. The applications include light operation, wettability control, fluid resistance reduction, interfacial bonding, and mold release.

Useful Information

Power Supply:

The electrical outlet Germany packs a wallop of 220-240 volts. Electrical sockets (outlets) in Germany are one of the two European standard electrical socket types: The „Type C“ Europlug and the „Type E“ and „Type F“ Schuko.

Important Phone Numbers:

| | |
|---|--------------------------|
| Police: | 110 |
| Firefighter and emergency doctor: | 112 |
| Office for items of lost property: | +49 421 3611-0080 |
| Poison Emergency (national): | +49 30 19240 |
| Emergency Medical Service: | +49 421 19292 |
| Emergency medical service for children : | +49 421 340 44 44 |
| Medical transport: | +49 421 19222 |
| Poison Emergency (national): | +49 30 19240 |
| Pastoral care telephone: | +49 421 504040 |

Wireless LAN is available at the conference venue.
Please connect to the WiFi named:

Lankenauer_Event WLAN

The password is:

<<<

LH_Event2024!

>>>



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A large grid of small blue dots for taking notes, consisting of 20 columns and 30 rows.



**Travel
and
Transportation**

Welcome in Bremen

For international guests planning to visit our beautiful city, this guide will help you navigate your way from the airport or central train station to the city center. Bremen is well-connected with various transportation options, facilitating your exploration of the city.

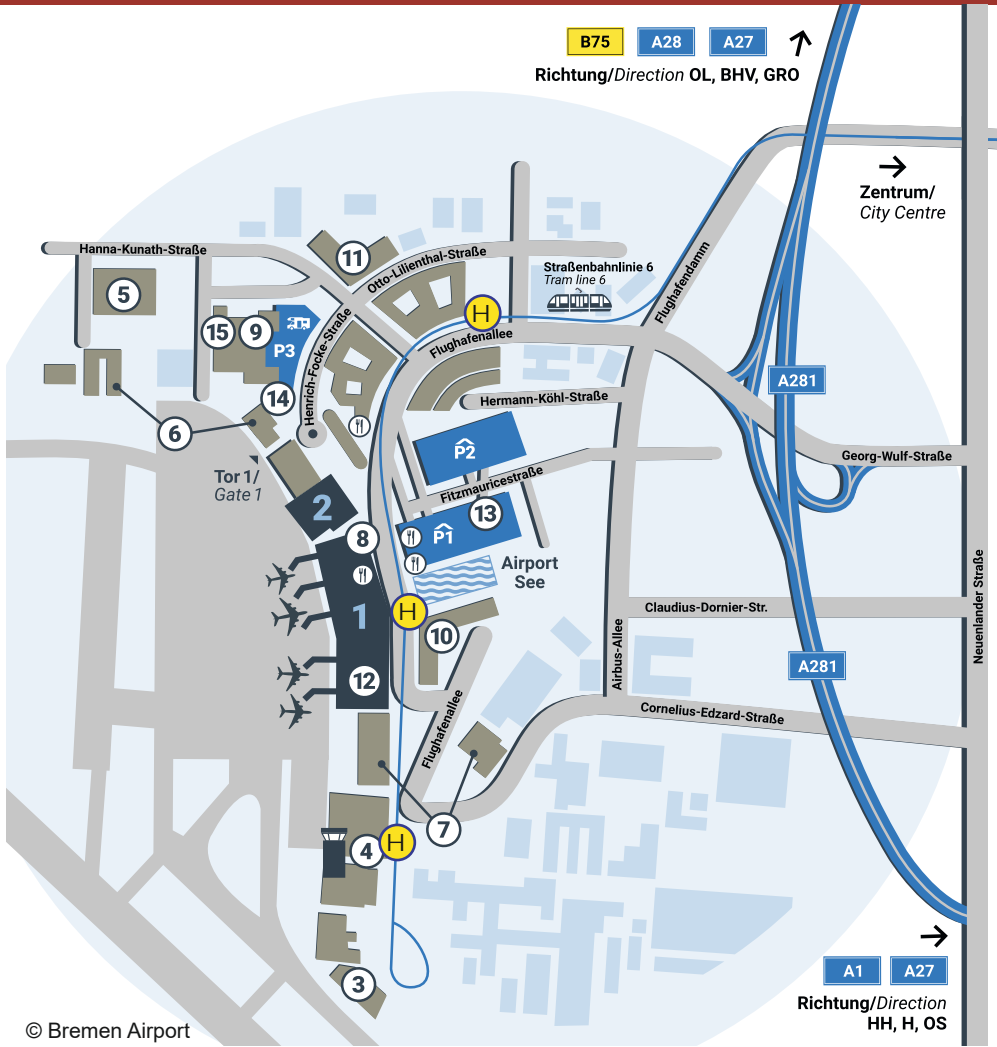


Bremen Airport, Hans Koschnick, is conveniently located just a few kilometers from the city center. It offers direct flights to major European cities, making it an ideal entry point for international travelers. So upon your arrival at Bremen Airport, you can reach the city center via several transportation modes in just several minutes:

Tram: The tram line 6 directly connects the airport to the city center. The tram stop is located outside the terminal building, and you can purchase your ticket at the automated ticket machines inside the Tram and at the Tram Station. A single distance ticket is about 3,00 €. The journey takes approximately 15-20 minutes, and trams are frequent.

Taxi: Taxis are available outside the airport terminal, and you can easily recognize them by their marked signs. Taxis are a convenient option, especially if you have a lot of luggage or prefer a direct route to your destination. The journey to the city center takes around 15-20 minutes, depending on the traffic.

Rental Car: If you prefer the convenience of having your own vehicle, several car rental companies can be found at the airport. You can pre-book a car or arrange it upon arrival.



- (H)** Tram Station Line 6
- | | | |
|---|---|---|
| <ul style="list-style-type: none"> 1. Terminal 1 2. Terminal 2 3. Airport fire brigade 4. Air traffic control 5. Atlas Air Service | <ul style="list-style-type: none"> 6. Bremen Aviation Club 7. Lufthansa Flight Training 8. Federal Police 9. Bremen Cargo 10. Atlantic Hotel Airport | <ul style="list-style-type: none"> 11. Holiday Inn Hotel 12. Car Rental 13. Rental car return 14. Bus Terminal 15. BRE Training centre |
|---|---|---|

Bremen Central Station

Bremen Central Station is the primary railway station in the city of Bremen, located northeast of the city center in the Bahnhofsvorstadt district. It serves as a major transportation hub for both regional and long-distance travel, accommodating ICE, Intercity, and EuroCity trains, as well as regional S-Bahn services. Designed by architect Hubert Stier in the Neorenaissance style, the station building was constructed between 1885 and 1889. With an average of 80 long-distance and 450 regional trains passing through its nine platforms daily, it ranks as the 11th busiest railway station in Germany by total passengers and visitors, with approximately 147,000 daily. The station also features bus and tram stops outside, and a DB Lounge on the first floor near the main entrance for first-class travelers and frequent passengers.

Once you arrived at the main station, please exit through the main hall. Outside on the left side are the Tram and bus stops for further public transport. Cabs are also available.



Taxis in Bremen

Cabs in Germany are called Taxis. They can be identified by a yellow sign like the one showed below with the lable TAXI on it. In many cases the cars are painted in creme colour.

Since Cab licenses and faires are regulated, each TAXI has a gauged price meter installed an mounted visible for the guest. The price is depending on a fixed starting price, the distance, waiting times at stops and traffic lights and additional fees for special taxis for more than four persons.



© Adobe Stock

To call a cab, you can get in touch with the following contacts:

Exemplary Cab companies:

| | | | |
|------------------|------------------|---|--|
| Taxi-Ruf Bremen: | +49 421 14 0 14 | - | www.taxi-ruf-bremen.de |
| Bremen Taxi: | +49 421 17 17 02 | - | www.bremen-taxi.com |
| Taxi Bremen: | +49 172 4261415 | - | www.dein-taxi-bremen.de |

Public Transportation is broadly available in Bremen and the whole Bremen area. Eight Tram-lines and 39 Bus-lines let you reach every spot in the city conveniently. Tickets can be bought in the Fahrplaner App, directly at the driver (bus-lines) or at ticket machines in the trams and at selected stations.

The FahrPlaner app (travel planner app):

The **FahrPlaner app** is an application available for iOS and Android operating systems that provides comprehensive travel planning and ticket booking services for public transport in the VBN region, Lower Saxony, Hamburg, Rostock, and nationwide train services.

The app allows you to search for connections and book tickets for various modes of transportation, such as buses, trains, taxis, and bicycles. It also provides information on Park & Ride facilities, parking garages, bike sharing, car sharing, and walking paths.

The app offers features like route planning, route choice, route path with an overview map, departure and arrival boards, route service information, real-time predictions, push notifications for current traffic conditions, display of ticket sales outlets and points of interest along the selected route, and pricing information for different transportation systems.

The HandyTicket feature of the app allows you to purchase tickets without registration using popular payment methods like PayPal, GooglePay, and ApplePay.

Overall, the FahrPlaner app aims to provide you with a convenient and efficient way to plan their journeys and navigate through various modes of transportation, enhancing the mobility experience for residents and visitors in Bremen, Lower Saxony, and other covered regions. You can download the app using the following QR-Codes



Google Play Store



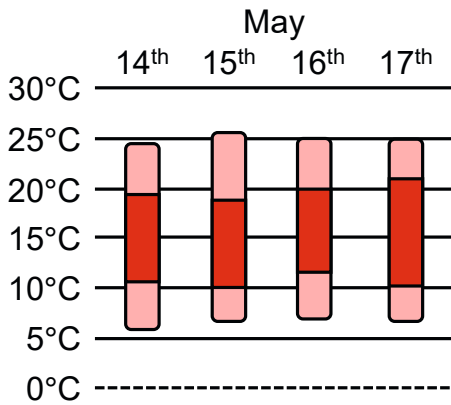
Apple Store



The weather in Bremen in May is changeable, ranging from cold to pleasant. Common temperatures are between 8 and 18 degrees and there are about 9 days of rain, so it is advisable to prepare for both warm and cool conditions.

Weather forecast for the 7th CIRP CSI 2024

The longterm weather forecast for the Conference is shown below. Please note that the prediction quality for long term weather forecast is limited. Also the Lankenauer Höft is located in an open free space and therefore can be a bit more windy. Please check the forecast again prior to your journey. The current forecast is for average temperatures of 15-20 degrees and a low probability of rain. there is a high probability of wind at the location, which is why a light jacket is recommended.

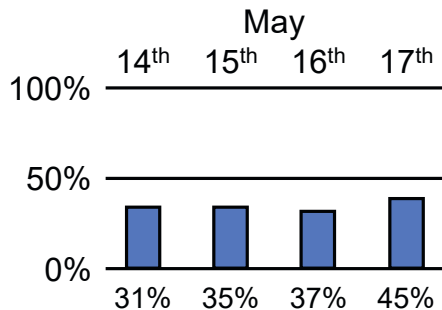


Temperature



- Expected temperature
- Possible temperature

Probability of rain





Conference Program

Tuesday May 14th

17:00 - 20:00

Welcome Event
with Lab Tours
at the
Leibniz-IWT Bremen

Wednesday May 15th

08:30

Conference Registration open

09:30

Opening Ceremony
and Round Table

10:20

Keynote Presentation

10:50

Coffee Break

11:20

Paper Sessions 1-3

12:45

Lunch Break

14:15

Paper Sessions 4-6

15:35

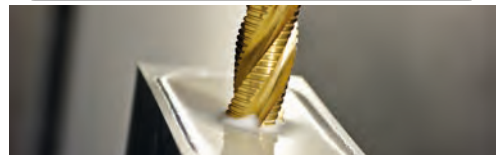
Coffee Break

16:05

Paper Sessions 7-9

17:25

End of Conference Day



Thursday May 16th

09:00
Keynote Presentation

09:30
Keynote Presentation

10:00
Coffee Break

10:30
Paper Sessions 10-12

11:50
Coffee Break

12:20
Paper Sessions 13-15

13:20
Lunch Break

14:50
Paper Sessions 16-18

16:30
Coffee Break

17:00
Transfer to Conference Dinner

18:00
Conference Dinner with Show Event

Friday May 17th

09:00
Keynote Presentation

09:30
Keynote Presentation

10:00
Coffee Break

10:30
Paper Sessions 19-21

11:50
Coffee Break

12:20
Paper Sessions 21-24

13:20
Lunch and closing Ceremony

15:20
End of Conference



The 7th CIRP CSI Welcome Event on May 14th 17:00 h

We cordially invite you to join us at the Leibniz-IWT for an immersive experience at our institute as part of the 7th CIRP CSI welcome event. Network with fellow attendees, share insights, exchange ideas, and forge new connections over drinks and snacks.

If you want, you can get to know our institute and through our optional four captivating lab tours. Each tour offering a unique insight into our research facilities and activities. Lasting approximately 25 minutes, these tours promise to ignite your curiosity and expand your understanding of our work. Four different routes are offered in each of four tour rounds:

Particle Route: Embark on a journey into particle technologies and material analytics on an atomic level.

Ultraprecision Route: Discover the advanced capabilities of Precision Machining and Plasma Focus Ion Beam SEM in this Route.

Heating Route: Experience the almost endless opportunities of additive manufacturing and the possibilities of materials engineering at the IWT in casting and heat treatment.

Finishing Route: This route offers the possibilities to get a quick insight into gear grinding and mechanical surface treatment activities at IWT.

Listen for the acoustic signal guiding you to the posters marking the start of each tour, where our knowledgeable guides eagerly await your arrival. Engage in conversation, ask questions, and immerse yourself in the excitement of manufacturing technology research at the Leibniz-IWT.

See you soon at the Leibniz-IWT in Bremen



The Leibniz Institute for Materials Engineering - IWT Bremen can conveniently be reached via public transport or car. The welcome event will take place in front of one of our research areas (marked on the map). Signs will guide you once you arrived at the main entrance.

By car or taxi please use the following address as destination:

**Leibniz-Institut für
Werkstofforientierte Technologien - IWT
Badgasteiner Str. 3
28359 Bremen
Germany**



[Google Maps Link](#)

If you are using public transportation:

The stop is named: **Universität / Zentralbereich** it can be reached with:

- Tram Line 6** – Universität-Nord
- Bus Line 21** – Towards Universität
- Bus Line 22** – Towards Universität-Ost
- Bus Line 28** – Towards Universität
- Bus Line 31** – Towards Borgfeld-Ost

Some of our City Guides **G** will welcome you directly at the Bus / Tram Stop and at the parking lot.



Conference Site & Schedule



The Conference Venue - Lankenauer Höft

About the Venue:

The Conference Venue - Lankenauer Höft is newly build and opened in 2024. Located on a half-island directly in the Weser. the architecture for the Lanke-
nauer Höft comprises a healthy mix of harbour and industrial elements, with
a focus on sustainability and authenticity.

The adaptable and inventive event area provides a vast expanse of space for
the celebration in question. In conjunction with the outdoor beach area, the
venue can accommodate up to 5,000 individuals.

As a conference venue the Lankenauer Höft provides 1100 m² of event- and
conference space, a restaurant, a private beach at the river „Weser“ and can
be reached via car, public transport or ferry.

During the 7th CIRP CSI three sessions rooms, a room to network and for
coffee breaks as well as a lunch area is prepared.

Rooms and Locations:

On the ground floor you'll find the Registration Desk, the coffee break and
Networking room „Höft“ and the session Rooms - „Bremen“ and „Weser“

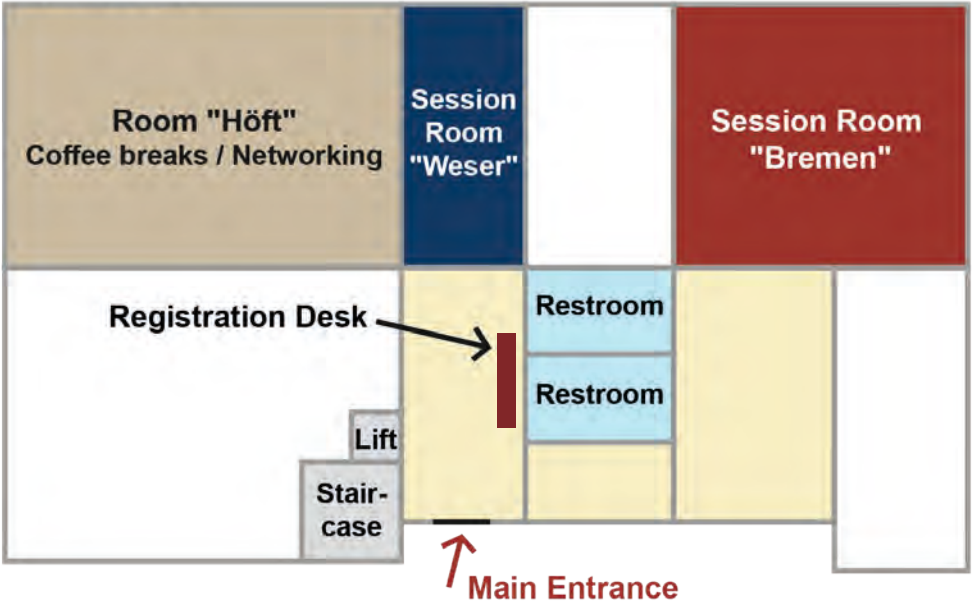
On first floor is the Session room „Hanse“ aswell as the Lunch area. During
good weather the roof terrasse can also be used during the lunch times.

Please see the plans on the right page for the exact location on each room.

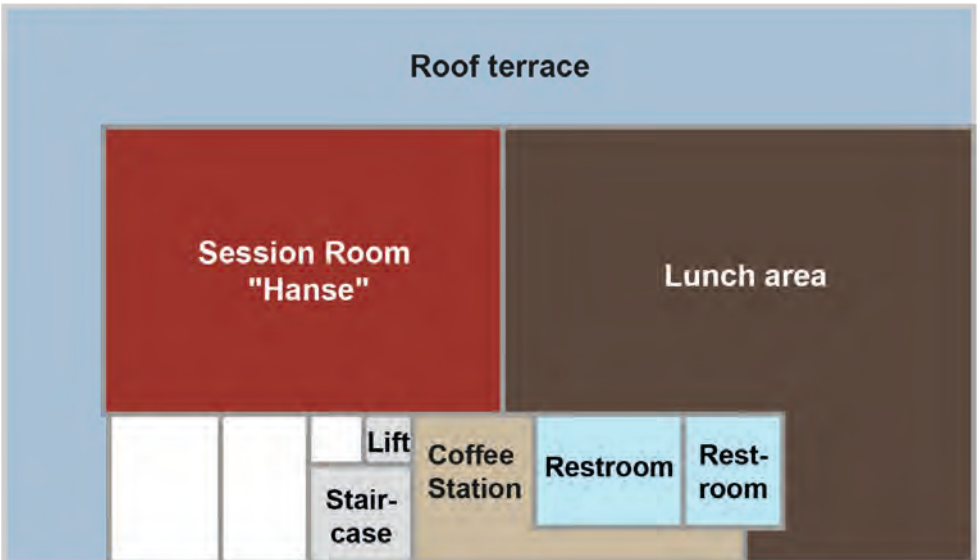


© Lankenauer Höft

Ground Floor



First Floor



The Lankenauer Höft can conveniently be reached via public transportation or car.

Arrival by car:

By car or cab please use the following address as destination:

Lankenauer Höft
Zum Lankenauer Höft
28197 Bremen
Germany



[Google Maps Link](#)

Public Transportation:

If you are using public transportation:

The nearest stop is named: **Rablinghausen** it can be reached with

Bus Line 24 – Towards Rablinghausen directly from the city centre.

Busses are frequent every 10 minutes. A ticket costs about 3,00 € per trip. Directly at the stop „Rablinghausen“ will be a CSI Welcome Desk.

Shuttle Transfer:

The bus stop is approximately 1,6 km or one mile away from the venue. Therefore our **CSI-Shuttle service will connect the Bus stop to the Lankenauer Höft**. Please wait at the CSI Welcome Desk. Shuttles will drive frequently from 08:00 h to 17:30 h.

Conference Service Desk:

The conference Service Desk can be found directly after the entrance to the Lankenauer Höft on the ground floor. It will be open from 08:30 h until 17:30 h

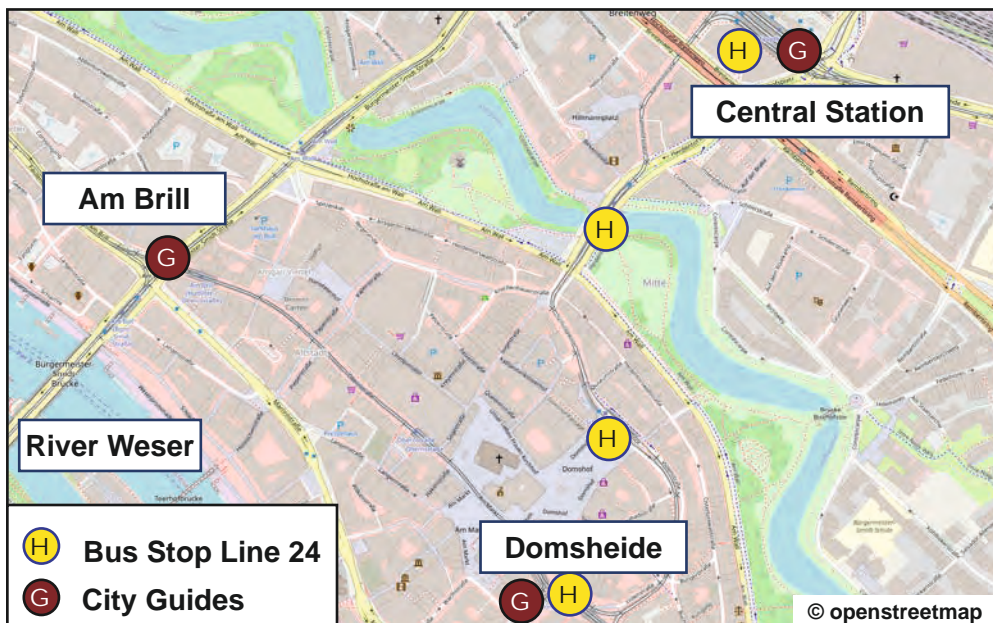
City Guides:

During the Conference there will be City Guides at three central places to assist you with questions how to reach the conference site. You can recognize these guides by their 7th CIRP CSI Basecaps.

City Guides can be found at the:

- Central Station - in front of the main Exit
- Bus Stopp „Domsheide“
- Bus Stopp „Am Brill“

from 08:00 h to 10:00 h on each conference day.



A large grid of small dots for taking notes, consisting of approximately 20 columns and 30 rows.



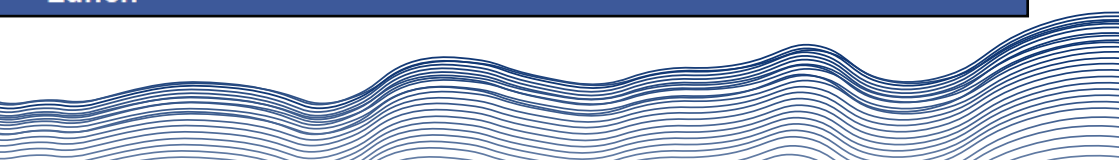
Conference Program

40 Program 1. Conference Day May 15th

Conference program

| Start | End | | |
|--------------|------------|--|---|
| 08:30 | 09:30 | | |
| 09:30 | 09:50 | 7th CIRP CSI - Ope | |
| 09:50 | 10:20 | Round Table of S | |
| 10:20 | 10:50 | Keynote Presentation: Prof. Fengzho | |
| 10:50 | 11:20 | | |
| | | Milling I | |
| Start | End | Room: Hanse | |
| | | Chair: Jose Outeiro | |
| | | | Chair: E |
| 11:20 | 11:40 | Surface Integrity Analysis in Orthogonal Milling of Inconel 718 <u>Hui Liu</u> , Markus Meurer, Thomas Bergs | Experimental ana RISA <u>Kodai Shimodo</u> , Hina <u>Kato</u> , <u>Mikinori Nagan</u> <u>Kentaro Watana</u> |
| 11:40 | 12:00 | Multi-axial ultrasonic vibration-assisted machining of Inconel 718 using Al₂O₃-CuO hybrid nanofluid MQL <u>Ramazan Hakkı Namlu</u> , Bahram Lotfi, Sadık Engin Kılıç | Surface integri different rail <u>L. Biazon</u> , M. Mesar |
| 12:00 | 12:20 | Experimental Investigation on the Surface Integrity in Micromilling AISI H11 Tool Steel <u>Timo Platt</u> , Alexander Leonard Meijer, Dirk Biermann | Rail Surface <u>Michael Mesaritis</u> , Ju |
| 12:20 | 12:40 | Influence of constant feed per tooth via spindle speed adaption on groove quality in micro milling <u>Benjamin Kirsch</u> , Andreas Lange, Nicolas Altherr, Tobias Mayer | Detection of therm Barkhausen Nois <u>Rahel Jedan</u> <u>Karpi</u> |
| 12:45 | 14:15 | | |

| | |
|--|---|
| Open Registration | |
| Opening Ceremony - Room: Hanse | |
| Surface Integrity - Room: Hanse | |
| You Fang - University of Dublin, University of Tianjin Room: Hanse | |
| Coffee break | |
| Grinding I Room: Bremen | Laser machining I Room: Weser |
| Bernhard Karpuschewski | Chair: Andreas Klink |
| Analysis of chemical removal effect in grinding of optical glass Yuta Takamaru, Yusuke Chiba, Hidebumi Ogo, Masahiko Fukuta, Katsutoshi Tanaka, Kazuhisa Hamazono, Yasuhiro Kakinuma | Laser Micromachining of Bionic Transport Structures on Cemented Tungsten Carbide Tools for Passive Directional Transport of Lubricants <u>Daniel Holder</u> , Kathrin Placzek, Christian Hagenlocher, Rudolf Weber, Thomas Graf |
| Surface integrity assessment in rail grinding for different grades and generated facets J.F. Santa, L.F. Molina, M. Palacio, A. Toro, R. Lewis | Preliminary study on surface processing of silica glass by atmosphere inductively coupled plasma for direct bonding <u>Jianwen Liang</u> , Yi Zhang, Binqi Jiang, Hui Deng |
| Surface Integrity Analysis in Laboratory Felipe Santa, Alejandro Toro, Roger Lewis | Investigating surface integrity of laser-machined polycrystalline diamond using a 300 W picosecond laser Stephen Dondieu, Sundar Marimuthu, <u>Priyanka Ghosh</u> , Helen Elkington, Paul Butler-Smith |
| Thermo-mechanical damages by in-process grinding. Power Analysis combined with Grinding Power Evaluation Gerrit Kuhlmann, Bernhard Karpuschewski, Jérémy Epp | High Power Laser Cutting of SiC-Al₂O₃ Ceramic Matrix Composites <u>Priyanka Ghosh</u> , Joseph Nix, Helen Elkington, Bethan Smith, Sundar Marimuthu |
| Lunch | |



42 Program 1. Conference Day May 15th

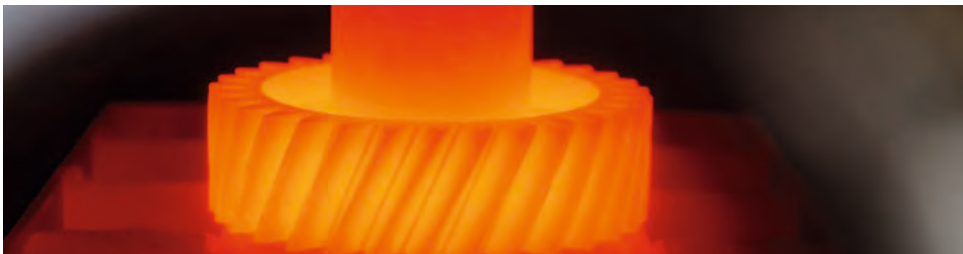
Conference program

| 12:45 | 14:15 | | |
|-------|-------|--|---|
| Start | End | Milling II Room: Hanse | Addi |
| | | Chair: Joel Rech | |
| 14:15 | 14:35 | Simultaneous high-speed cutting and high-feed milling: An investigation on surface integrity <u>Gerrit Kuhlmann</u> , Dmytro Borysenko, Jens Sölter, Bernhard Karpuschewski | Effect of process p manufacturing (WAA surf Berend Denkena, |
| 14:35 | 14:55 | Assessment of workpiece surface integrity and dimensional/geometrical accuracy following finish plunge end milling of holes drilled with worn tools in PM processed nickel based superalloy G.J. Deng, <u>S.L. Soo</u> , R. Hood, K. Marshall, A.L. Mantle, D. Novovic | Surface Integrity of Parts Subj <u>Guilherme Fernando</u> R |
| 14:55 | 15:15 | Evolution of surface quality in micromilling Ti-6Al-4V alloy with increasing machined length <u>Maria Clara Coimbra Goncalves</u> , Rob Alsters, David Curtis, Rachid M'Saoubi, Hassan Ghadbeigi | Stream Finishing o PBF-LB Parts: Influe |
| 15:15 | 15:35 | Chip Morphology Prediction in Inconel 718 Milling through Machine Learning to Control Surface Integrity Omkar Mypati, Hakan Doğan, <u>Zhirong Liao</u> , Alborz Shokrani Chaharsooghi | On the surface i grade Ni-based sup assisted sinter <u>Henry Boyle</u> , Ky Christofidou, Susa |
| 15:35 | 16:05 | | |



| Lunch | |
|---|--|
| Additive Manufacturing | EDM I |
| Room: Bremen | Room: Weser |
| Chair: Jens Sölter | Chair: Carsten Heinkel |
| Parameters during wire arc additive manufacturing (WAM) and mechanical finishing on the surface zone properties | Surface integrity analysis of single discharge characteristics derived from the continuous wire EDM process |
| Marcel Wichmann, Philipp Pillkahn | Jan Wittenburg, Ugur Küpper, Tim Herrig, Thomas Bergs |
| 20MnCr5 Laser Powder Bed Fusion Effect to Contact Fatigue Test | Residual Stress Effects of Multiple Thermal Material Loads due to a Roughing-Finishing Sequence of Electrical Discharge Machining Processes |
| Luís Guimarães, Alfredo Rocha de Faria, Ronnie Rodrigo Rego | Kai Osswald, Sebastian Schneider, Andreas Klink, Thomas Bergs |
| Surface Integrity of Additively Manufactured AlSi10Mg on Surface Quality and Fatigue Behaviour | Surface integrity of 316L steel machined sequentially by wire EDM and wire ECM. |
| Benjamin Kramer, Johannes Schubert, Volker Schulze, Frederik Zanger | <u>Thomas Van Riel</u> , Jun Qian, Bert Lauwers |
| Surface Integrity of machined aero-engine Inconel alloy billets produced by the field-assisted finishing technology (FAST) route | Ultrasonic Vibration assisted Silver Integration by Powder Mixed EDM for Antibacterial Surfaces |
| Wendy Marshall, Mario Epler, Katerina Norgren, Pete Crawforth, Martin Jackson | <u>Viet Duc Bui</u> , André Martin, Thomas Berger, Karsten Harnisch, Joachim Döring, Jessica Bertrand, Andreas Schubert |
| Coffee break | |

Conference program



| 15:35 | 16:05 | Ultraprecision machining Room: Hanse Chair: Yasuhiro Kakinuma | |
|-------|-------|--|--|
| Start | End | | |
| 16:05 | 16:25 | Effect of material composition on the action of surface active medium in ultra-precision microcutting <u>Jibin Boban</u> , Afzaal Ahmed | Tool concept fo proc Marc |
| 16:25 | 16:45 | Effect of cutting speed on the surface integrity of single point diamond turned (100)Ge Michele Tunesi, Eann Lawing, Colton Estes, John Gasson, Brian S. Dutterer, Matthew A. Davies, <u>Don A. Lucca</u> | Surface Integrity in and Effects on O. Cherguy, U. Ele |
| 16:45 | 17:05 | Influence of the width of cut in ultrasonic vibration superimposed face milling of X46Cr13 and X40CrMoV5-1 on the surface microstructure and CVD diamond coating adhesion <u>Richard Börner</u> , Andreas Schubert | Surface Integrity E Process P.Ruiz, J.Mendik |
| 17:05 | 17:25 | Influences of tool tip geometry on surface/subsurface damage formation in nanoscratching of single-crystal 4H SiC <u>Weihai Huang</u> , Jiwang Yan | |
| 17:25 | | End of | |



| Coffee break | |
|---|---|
| Grinding II Room: Bremen Chair: Tobias Hüsemann | Mechanical surface treatment I Room: Weser Chair: Volker Schulze |
| Effect of the increase of the mechanical stress effect in grinding ...o Eich, Carsten Heinzel | Surface Integrity of Additively Manufactured Workpieces after Machine Hammer Peening M. Dadgar, S. Gräfe, M. Müller, T. Herrig, T. Bergs |
| Influence of the Belt Finishing Process on the Fatigue Limit of a 27MnCr5 Carburized Steel ...cegui, S. Han, F. Cabanettes, J. Rech | Influence of the strain rate on the Surface Integrity on 42CrMo4 generated by machine hammer peening Oliver Maiß, Daniel Meyer |
| Evolution in Grinding by means of In-Eddy Current Inspections ...ute, J.L.Lanzagorta, D.Barrenetxea | Reluctance Based Actuator for Discrete Machine Hammer Peening Markus Prießnitz, Stephan Krall, Helmut Caudr, Severin Maier, Christian Baumann, Friedrich Bleicher |
| | Application behavior of a piezo-actuated deep rolling tool Vannila Prasanthan, Bernd Breidenstein, Miriam Handrup, Paul Herrmann |
| End of Conference Day | |

Conference program



| Start | End | | |
|-------|-------|---|--|
| 09:00 | 09:30 | Keynote Presentation: Dr. André Walter - Cha | |
| 09:30 | 10:00 | Keynote Presentation: Prof. Marc Avila - Ce | |
| 10:00 | 10:30 | | |
| | | Milling III | |
| | | Room: Hanse | |
| | | Chair: Jens Sölter | |
| 10:30 | 10:50 | <p>The effect of workpiece grain size on surface integrity in orthogonal cutting of Inconel 718</p> <p><u>Jian Weng</u>, Dongdong Xu, Jinming Zhou, Rachid M'Saoubi, Kejia Zhuang</p> | <p>Numerical mod</p> <p><u>Andreas Zabel</u>, Strodict,</p> |
| 10:50 | 11:10 | <p>Effect of cutting parameters and CO2 flow rate on surface integrity in milling AISI 316L steel using supercritical CO2</p> <p><u>K. K. Wika</u>, P. Litwa, A. Maurotto</p> | <p>Development of an Workpiece Roug</p> <p><u>Florian Sauer</u>, F</p> |
| 11:10 | 11:30 | <p>Modeling of high-feed milling and surface quality applied to Inconel 718</p> <p><u>Thomas Jacquet</u>, Guillaume Fromentin, David Prat, Fabien Viprey</p> | <p>Analytical model t</p> <p><u>G. Ortiz-de-Zarate</u></p> |
| 11:30 | 11:50 | <p>Effect of surface integrity on Inconel 718 thin part distortion during finish flank milling</p> <p>Fabien Viprey, <u>Guillaume Fromentin</u>, Côme Maurel, Théo Dorlin, Habib Karaoui</p> | <p>Atomic-scale s copper under e</p> <p>Jiamin</p> |
| 11:50 | 12:20 | | |



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|--|---|
| <p>Chairman of Management Board AIRBUS Aerostructures GmbH Room: Hanse</p> | |
| <p>Center of Applied Space Technology and Microgravity ZARM Room: Hanse</p> | |
| <p>Coffee break</p> | |
| <p>Modelling I Room: Bremen</p> | <p>Mechanical surface treatment II Room: Weser</p> |
| <p>Chair: François Ducobu</p> | <p>Chair: Friedrich Bleicher</p> |
| <p>Modelling of the BTA deep hole drilling process</p> <p>Robert Schmidt, Tim Rödter, Simon Frank Walther, Dirk Biermann</p> | <p>Fatigue life analysis of deep rolled bearing inner rings</p> <p>Benjamin Bergmann, Bernd Breidenstein, Gerhard Poll, Florian Pape, Simon Dechant, <u>Henke Nordmeyer</u></p> |
| <p>An Analytical Model for Correlation with Roughness in Stream Finishing using a LiDar Sensor</p> <p>Patrick Neuenfeldt, German Gonzalez, Volker Schulze</p> | <p>Surface changes and fretting fatigue evaluation of Ti6Al4V burnished hip necks</p> <p>Maria Rosaria Saffioti, Giovanna Rotella, <u>Domenico Umbrello</u></p> |
| <p>To identify crack initiation in machined aluminium parts</p> <p>..., A. Madariaga, I. Perez, , P.J. Arrazola</p> | <p>Experimental study on the influence of blasting time on the surface topography of machined steel samples</p> <p><u>Stefanie Stöckel</u>, Zhen Li, Sophie Groeger</p> |
| <p>Study on mechanical behaviours of elliptical vibration-assisted cutting</p> <p>g Zhan, Ye Tian, <u>Hao Wang</u></p> | <p>Effect of shot peening with different peening intensity and coverage on surface integrity of Inconel 718 alloy</p> <p><u>Wei Feng</u>, Jun Zhang*, Hongguang Liu, Wanhua Zhao</p> |
| <p>Coffee break</p> | |

Conference program

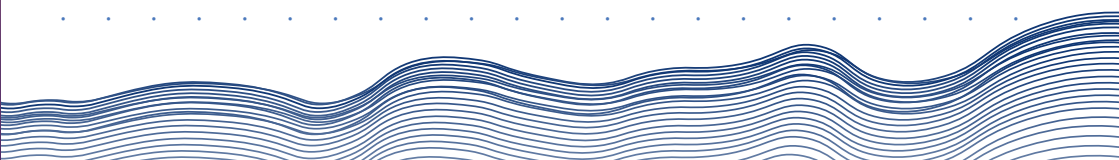


PIONEERING
SUSTAINABLE
AEROSPACE
FOR
A
SAFE AND
UNITED WORLD

Through an unwavering commitment to decarbonisation, Airbus is pioneering sustainable aerospace for a safe and united world. Discover more about how our technological developments are shaping a brighter future for generations to come.

AIRBUS

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| | | | |
|-------|-------|--|---|
| 11:50 | 12:20 | Turning I | |
| | | Room: Hanse | |
| | | Chair: Pedro Jose Arrazola | |
| 12:20 | 12:40 | Mechanics and surface characterization of high-speed diamond turning of germanium <u>Eann Lawing</u> , Michele Tunesi, Colton Estes, John Gasson, Brian S. Dutterer, Don A. Lucca, Matthew A. Davies | Effect of cooling s in JM Zhou, K Slipch |
| 12:40 | 13:00 | Tool Dynamics-induced Surface Topography Error in Fast Tool Servo-Based Diamond Turning of Micro Dome Arrays <u>Takeshi Hashimoto</u> , Jiwang Yan | Influence of a cut fatigue stre Raphael L |
| 13:00 | 13:20 | Distribution of plastic strain in cutting of Ti-6Al-4V titanium alloy using experimental and modelling approaches <u>Jose Outeiro</u> , Wenyu Cheng | Automatic diagn white etching lay thresholding <u>Simon Strodi</u> B |
| 13:20 | 14:50 | | |



| Coffee break | |
|--|---|
| Drilling I | Laser machining II |
| Room: Bremen | Room: Weser |
| Chair: Andreas Zabel | Chair: Tobias Hüsemann |
| Scheme and coating on surface quality of drilling of Inconel 718 | In-situ surface roughness evaluation of laser powder bed fusion surfaces using optical tomography |
| <u>Y. Senko</u> , S Frejd, C Windmark, <u>R M'Saoubi</u> | <u>Cagdas Sen</u> , Gokhan Sail, Levent Subasi, Soner Oren, Gokhan Dursun, Akin Orhangul |
| Coating fluid on the surface integrity and length of 42CrMo4 drilled parts. | Investigating the variation of particle distribution and surface texture of top surfaces based on build position in laser powder bed fusion |
| <u>Y. Morain</u> , <u>Rosalinda Solis</u> , Joël Rech | <u>Cindy Sithole</u> , Helia Hooshmand, Luke Todhunter, Ian Gibson, Sipke Hoekstra, Athena Jalalian, Samanta Piano |
| Surface analysis and thickness determination for coatings in deep drilled steels based on machine learning algorithms | Improving surface integrity and wear resistance of selective laser melted 316L stainless steel using ultrasonic nanocrystal surface modification |
| <u>Dirk Robert Schmidt</u> , Andreas Zabel, Dirk Ermann, Frank Walther | <u>Yu Zhang</u> , Lan Peng, Youwang Wang, Chang Ye |
| Lunch | |

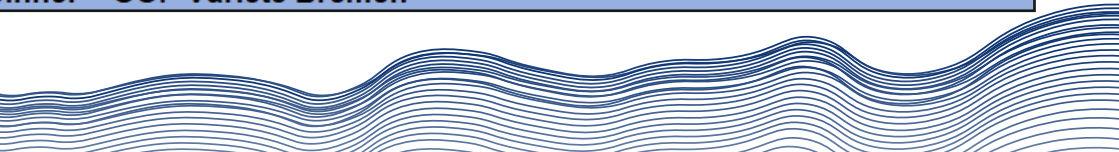
Conference program



| | | | |
|-------|-------|--|---|
| 13:20 | 14:50 | | |
| | | Turning II Room: Hanse | |
| | | Chair: Oltmann Riemer | |
| 14:50 | 15:10 | <p>Investigation of the surface topography and cutting tool kinematics in Hammering Turning</p> <p><u>Jannik Schwalm</u>, Mike Görtz, German Gonzalez, Frederik Zanger, Volker Schulze</p> | <p>Simulative s tribological s</p> <p>Berend Denkena Hans Gereh</p> |
| 15:10 | 15:30 | <p>Surface integrity after hard turning using specially ground cemented carbides</p> <p>Mateus Keniti Nakashima Sinzato, Ueliton Carvalho Alves, <u>Armando Italo Sette Antonialli</u>, Carlos Eiji Hirata Ventura, João Vitor Carvalho Fontes, Joël Rech</p> | <p>Surface micro Assisted Def Simulati</p> <p>Nithin Kumar Bar <u>Philipp Steinert</u>, An</p> |
| 15:30 | 15:50 | <p>The role of retained austenite on the formation of the nanostructured hard-turned induced white layer in AISI 52100 bearing steel</p> <p><u>S. Kokkiral</u>, K. Osman, J. Holmberg, S. Kimming, H. Iwasaki, U. Klement, S.B. Hosseini</p> | <p>Simulative and surface integri</p> <p>Tas</p> |
| 15:50 | 16:10 | <p>Experimental study of residual stress profiles evolution in face turning with flank wear progress</p> <p><u>Sangil Han</u>, Emilie Viéville, Herve Pascal, Mehmet Cici, Thierry André, Frédéric Valiorgue, Joël Rech</p> | <p>Inverse analysis o</p> <p><u>Zheng-Yan Yang</u>, L</p> |
| 16:10 | 16:30 | <p>Experimental study of residual stress profiles evolution in longitudinal turning with flank wear progress</p> <p>Sangil Han, Emilie Vieville, Hervé Pascal, Mehmet Cici, Thierry Andre, Frédéric Valiorgue, <u>Joël Rech</u></p> | <p>Towards the num</p> <p>F.Clavier, F.Valiorg</p> |
| 16:30 | 17:00 | | |
| 17:00 | 18:00 | River trans | |
| 18:00 | 22:30 | Conference D | |



| Lunch | |
|---|--|
| Modelling II Room: Bremen | EDM II Room: Weser |
| Chair: Domenico Umbrello | Chair: Bernhard Karpuschewski |
| Surface topography prediction of surfaces on whirled thread flanks , Benjamin Bergmann, <u>Christian Wege</u> , ke-Bornemann, Moritz von Soden | Bending fatigue performance due to different roughing finishing sequences and post-processing of components produced by Wire EDM Lukas Welschhof, Tim Herrig, <u>Andreas Klink</u> , Thomas Bergs |
| Structuring by Ultrasonic Vibration Formational Machining (UVADM) – on and experimental results ndaru, Hendrik Liborius, Niclas Hanisch, dreas Nestler, Thomas Lampke, Andreas Schubert | Surface integrity analysis on selective removal by EDM of near-circular shapes from deterministic lattice structures fabricated by LPBF <u>Sumit Gusain</u> , Sarvesh Kumar Mishra, Amaia Callej, Janakarajan Ramkumar, Luis Norberto Lopez de Lacalle |
| Experimental investigation of the stability obtained by Non-Circular-Rotary-Turning (NCRT) <u>Massimo Arndt</u> , Volker Schulze | Identification of surface roughness parameters for the function-oriented description of EDMed surfaces R.Hess, U. Küpper, T. Herrig, A. Klink, T. Bergs presented by: <u>J. Wittenburg</u> |
| Simulation of machining residual stress based on hybrid model Dong Zhang, Guang-Chao Nie, Xiao-Ming Zhang, Han Ding | Investigation of high entropy alloy coatings produced by electrical discharge machining <u>Jan Wittenburg</u> , Lisa Ehle, Ugur Küpper, Tim Herrig, Thomas Bergs |
| Experimental simulation of tool wear induced residual stress drift <u>Guillaume C.Courbon</u> , J.Rech, A.Van Robaeyaes, Y.Chen, J.Kolmacka | Investigation of Surface Characteristics in Magnetic Field assisted Electrical Discharge Machining <u>Viet Duc Bui</u> , André Martin, Thomas Berger, Andreas Schubert |
| Coffee break | |
| Transfer to Conference Dinner | |
| Dinner - GOP Varieté Bremen | |



Private River transfer tour to conference dinner Site:

After todays conference program we would like to cordially invite you to join us at the 7th CIRP CSI Conference dinner and to enjoy the beauty of the Weser and Bremens hytoric city centre during our private river transfer tour to the dinner site.

The tour will start directly at the shipping pier of the Lankenauer Höft an will take approximately one hour. Enjoy the view on the beautiful evening river side and connect with the other conference participant over a cold beverage.

To join the private river transfer please find yourself in the room for coffee breaks until 16:45 h. All participants will board the ship as a group.

Quick facts for the Transfer to the conference dinner:

Meeting time: 16:45 h

Meeting point: Room Höft (Coffe break room)

Begin of private River Transfer: 17:00 h

Duration: approximetely one hour

Lavatorys are available on the ship

Please remeber to take all your belonging with you. After the conference dinner there is no return to the conference site planned for that day.



Conference Dinner location: GOP Variety Theatre Bremen

The theatre offers a stylish ambience in which to be inspired by outstanding artists. Our warm hosts will look after you. The GOP provides entertainment at the highest level, with spectacular performances and moments of great comedy. World-class artists and entertainers will touch your heart and tantalise your senses. The show programme changes every other month, with the international ensemble changing with it. The exceptional artists present a diverse range of contemporary variety art, showcasing their talents in a variety of formats, including humour, artistry, and spectacular performances. GOP also offers a selection of refined culinary experiences prepared by our chefs, ensuring an entertainment experience that appeals to all senses.

GOP Adress: Am Weser-Terminal 4, 28217 Bremen



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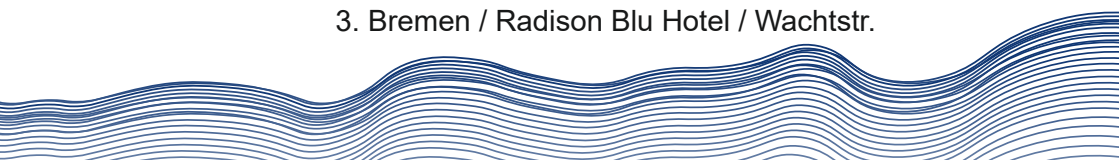
Bus Shuttle transfer after the conference dinner:

After the conference dinner we offer a Bus Shuttle transfer to three hotels located close to the city center:

Transfer time: starting at 22:30 h until 01:30 h the following day.

Stops:

1. Bremen / Hotel Motel One / Am Brill 10
2. Bremen / Maritim Hotel / Hollerallee 99
3. Bremen / Radison Blu Hotel / Wachtstr.

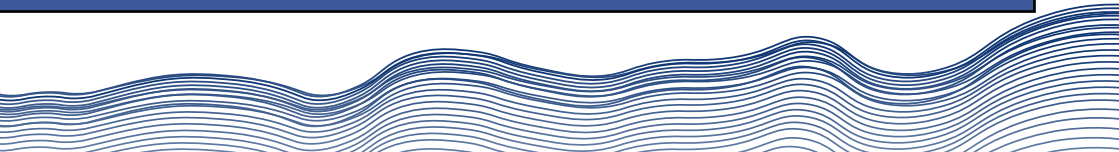


| Start | End | | |
|-------|-------|--|---|
| 09:00 | 09:30 | Keynote Presentation: Prof. Bernhard Kar | |
| 09:30 | 10:00 | Keynote Presentation: P | |
| 10:00 | 10:30 | | |
| | | Turning III Room: Hanse | T |
| | | Chair: Fengzhou Fang | C |
| 10:30 | 10:50 | Analyzing the Impact of In Situ Workpiece Temperature on Thermally Induced Part Distortion during Turning <u>Anna Kibireva</u> , Hui Liu, Markus Meurer, Thomas Bergs | Tool Geom Ass <u>Iñigo Rodriguez</u> Pusa |
| 10:50 | 11:10 | Machining Effect On The Surface Integrity And Superelasticity Of Additively Manufactured And Heat-Treated Nitinol <u>Rachele Bertolini</u> , Saeed Khademzadeh, Andrea Ghiotti, Stefania Bruschi | Surface Integri <u>Muhan</u> |
| 11:10 | 11:30 | Electric heat machining of SiCp/Al composites <u>Xiao-Chen Liu</u> , Dong Zhang*, Guang-Chao Nie, Zheng-Yan Yang, Xiao-Ming Zhang, Han Ding | Effect of Nos its Consequenc M <u>Shravan Kuma</u> |
| 11:30 | 11:50 | | The treatmen b <u>Tomáš Vopá</u> Mar |
| 11:50 | 12:20 | | |

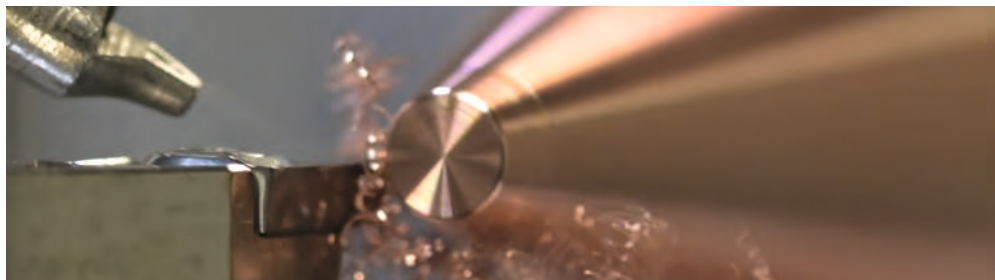


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| puschewski - University of Bremen / Leibniz-IWT Bremen Room: Hanse | |
| rof. Jiwang Yan - Keio University Tokyo Room: Hanse | |
| Coffee break | |
| Tool optimisation Room: Bremen | Metrology Room: Weser |
| Chair: Rachid M'Saoubi | Chair: Carsten Heinzl |
| Geometry Optimisation for LCO2 Assisted Milling of Ti6Al4V , Denis Soriano, Mikel Cuesta, Francis Javec, Pedro José Arrazola | Surface Integrity Evaluation Based on Barkhausen Noise Analysis: A Conceptual Approach <u>Jakob Lötfering</u> , Markus Meurer, Thomas Bergs |
| Stability in Laser De-coating of Tooling <u>Abdumad Tajuddin Bin Reduan</u> , Paul Mativenga | Non-destructive X-ray diffraction surface integrity inspection of an aeroengine component <u>Matthew Brown</u> , Mattis Lieder, Pete Crawforth, David Curtis |
| Effect of Radius on Surface Integrity and Tribological Performance of Machined Component <u>Pradyumn Yadav</u> , Sudarsan Ghosh, Aravindan Sivanandam | Comparison of 2D and 3D measurement methods for evaluating laser structured aluminum surfaces using fractal dimension <u>Niclas Hanisch</u> , Philipp Steinert, Erik Saborowski, Hendrik Liborius, Thomas Lindner, Nithin Kumar Bandaru, Andreas Schubert, Thomas Lampke |
| Effect of cemented carbide cutting tool wear by plasma discharges <u>Michal Štefan</u> , Štefan Podhorský, Jozef Peterka, Martin Sahul, Marián Haršáni | |
| Coffee break | |

Conference program



| | | | |
|-------|-------|--|---|
| 11:50 | 12:20 | | |
| | | Drilling II & punching | |
| | | Room: Hanse | |
| | | Chair: Oltmann Riemer | |
| 12:20 | 12:40 | Tool wear and surface finish analysis after drilling Al-SiC metal matrix composite with DLC-coated tools at varying feed | Prediction of S through Pheno Continuo |
| | | <u>Edoardo Ghinatti</u> , Rachele Bertolini, Marco Sorgato, Andrea Ghiotti, Stefania Bruschi | <u>Alexander Brou</u> |
| 12:40 | 13:00 | Influence of the cutting edge preparation of carbide punching tools for punching of ultra-high strength spring steel strips | The influence |
| | | <u>Nermin Redžić</u> , Sven Winter, Elmar Galiev, Sarah Baron, Christian Stein, Markus Höfer, Joachim Regel, Martin Dix | Tjarden p |
| 13:00 | 13:20 | Effect of Cutting Conditions on Surface Integrity when Robotic Drilling of Aluminum 6082-GFRP Stacks | |
| | | <u>Thomas Beuscart</u> , Pedro José Arrazola, Noémie Tinel, François Ducobu | |
| 13:20 | 15:20 | Lunch | |
| 15:20 | | En | |



| Coffee break | |
|---|--|
| Turning IV Room: Bremen Chair: Jiwang Yan | Hybrid machining Room: Weser Chair: Daniel Meyer |
| Surface Profile in CFRP Machining menological Analysis and inverse ous Wavelet Transformation <u>Schkin</u> , Jan Dege, Wolfgang Hintze | Hybrid tools for improved removal and surface finish of metals and non-metals <u>Ashwani Pratap</u> , Anthony Beaucamp |
| of an ambient energetic field on precision cutting n Zielinski, Oltmann Riemer presented by: <u>L. Arera</u> | Milling or grinding for manufacturing of an Alloy 718 gas turbine component? – A comparison of surface integrity and productivity <u>Jonas Holmberg</u> , Johan Berglund, Anders Wretland, Anki Klason, Roger Persson |
| / Closing Ceremony | |
| nd of Conference | |

Conference program



Travel and Transport

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Social Program

Welcome to Bremen, a beautiful city in northern Germany that is renowned for its rich history, stunning architecture, and vibrant cultural scene. As you explore the city, you will have the opportunity to witness the magnificent UNESCO World Heritage Site, the Town Hall, and the Roland statue, both of which are situated proudly in the Market Square. This historic square is also home to the Bremen Cathedral, an awe-inspiring gothic masterpiece that dates back to the 11th century. Take a moment to step inside the cathedral and be mesmerized by its breathtaking stained glass windows.

If you are a history enthusiast, be sure not to miss a visit to the Schnoor Quarter. Its narrow, winding streets, evoking a sense of stepping back in time, characterize this charming neighborhood. Embark on a journey of discovery as you marvel at the quaint fisherman's houses and browse through the unique shops and galleries that line the streets. While strolling through this picturesque area, treat yourself to the local specialty, a mouthwatering Bremen coffee, at one of the cozy cafés.

Bremen's maritime heritage is well known, and thus it is imperative to visit the Übersee Museum. This museum offers valuable insights into the city's history as a bustling port through a variety of fascinating exhibits from all over the world. For those seeking adventure, take a boat tour along the Weser River and enjoy panoramic views of the cityscape from the peaceful waters.

When it comes to gastronomy, Bremen caters to all tastes. With its diverse culinary scene, the city offers traditional German dishes as well as a wide range of international cuisines. To sample local flavors, make your way to the Schlachte Embankment, a lively riverfront promenade adorned with charming restaurants and bars. Indulge in mouthwatering seafood delicacies or savor the famous Bremen beer, brewed using traditional methods passed down through generations.

If you have a sweet tooth, don't miss the opportunity to try a traditional Bremer Knipp or savor a slice of delicious Klaben, a fruit bread bursting with flavors. And of course, no visit to Bremen would be complete without indulging in a scrumptious butter cake, affectionately known as "Bremer Kuchen."

As night falls and the city lights up, make your way to the Böttcherstrasse. This distinctive street is a true architectural gem, showcasing expressionist



buildings, charming courtyards, and captivating art installations. Take your time as you wander through this enchanting street, immersing yourself in its magical atmosphere before settling down for a delightful dinner in one of the many cozy restaurants that line the street.

Bremen truly offers an unforgettable experience to international guests. With its fascinating history, stunning architecture, vibrant cultural scene, and diverse culinary delights, the city is the perfect destination for a memorable visit. So pack your bags and prepare yourself for an enchanting journey that will leave you captivated and longing to return.

Potential City Tour:

Bremen Town Musicians:

The Bremen Town Musicians are iconic symbols of Bremen. The bronze sculpture, created by sculptor Gerhard Marcks in 1951, stands on the western side of the town hall and enjoys international recognition.

Rathaus (Town Hall):

The Bremen Rathaus, along with its Roland statue, is a UNESCO World Heritage Site. Constructed between 1405 and 1410, it boasts a picturesque façade in the style of Weser Renaissance architecture from the 17th century. Notable areas to explore within the Rathaus include the Upper Hall, Güldenammer, and Ratskeller.

House of Citizenship:

The Bremen Citizenship is now based in the House of Guarantee and was created in 1966 by the architect Wassili Luckhardt.



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Bremer Ratskeller:

The historic Ratskeller, over 600 years old, houses the world's largest collection of German wines, featuring an impressive 650 varieties. Among its treasures is the oldest barrel wine dating back to 1653. Visitors can also enjoy a restaurant serving Bremen specialties and partake in exciting guided tours.

St. Peter's Cathedral (St. Petri Cathedral):

With a tradition spanning 1200 years, St. Peter's Cathedral in Bremen stands as a remarkable architectural landmark. Noteworthy features include the western and eastern crypts, as well as the historic organs. The cathedral's construction began in 1041 under Archbishop Bezelin, and later, Bishop Adalbert expanded it into a three-aisled basilica with a double choir and two crypts. Extensive restoration work took place between 1888 and 1901. Today, the cathedral also serves as a museum, housing sacred exhibits.

Böttcherstraße:

The Böttcherstraße, often considered Bremen's hidden main street, features the gilded relief sculpture "Der Lichtbringer" (The Light Bringer), the Paula Modersohn-Becker Museum, the Roselius House, and a carillon made of Meissen porcelain.

Schnoor:

Small, narrow half-timbered houses from the 15th and 16th centuries are lined up in Bremen's oldest quarter. Small shops, goldsmiths, handicrafts as well as cafes and restaurants and the Bremen History House.





Additional Sights:

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Weser promenade Schlachte:

Here life takes place on the river. From here, historic and modern ships offer daily Weser cruises and the beer and summer gardens invite you to relax. Martini feeders
The Weser and harbour tours start from here.

Überseestadt:

Former harbour district, now a lively quarter with interesting gastronomic diversity. Museums, leisure activities, changing events and modern architecture.

Beck's Brauerei:

Bremen's traditional brewery with world renown: Learn interesting facts about beer brewing and the brands Beck's and Haake-Beck during a guided tour. Experience the museum, raw materials room and brewhouse, followed by a small beer test.

The „Quarter/Viertel“

Lively district with a lot of atmosphere: Chic restaurants and iconic pubs, exclusive fashion and second-hand, latte macchiato and can beer, street art and cultural mile with museums and theaters.

The north of Bremen:

Ideal for cycling and excursions. Maritime mile in Vegesack with school ship Germany, Museumshaven, Vegesacker History House, Overbeckmuseum and more. Various parks and gardens on Lesum and Weser.



Hearty, tasty, sometimes a little bizarre and certainly not for vegetarians - get to know typical Bremen specialities!

Knipp:

Probably Bremen's best-known dish is "Knipp". It essentially consists of a grilled sausage. This is usually made from porridge, broth and a mix of pork and beef. Knipp is fried until crispy and traditionally eaten with fried potatoes or bread as well as pickled gherkins and apple sauce.

Fried Stinte:

In the past, smelts migrated up the Weser in such large numbers from January to March that they could be pulled out of the river in buckets. Accordingly, fried smelts were long regarded as a poor man's food, whereas today they are a speciality.

Fish sandwiches:

People eat fish in the north! Whether it's matjes, herring, mackerel or North Sea crabs, these freshly caught delicacies in a roll are among the most popular snacks for in-between meals.

Labskaus:

As everywhere in the far north, Labskaus is also a traditional dish in Bremen. Although the dish, which consists mainly of potatoes, salted meat and beetroot, does not usually look particularly attractive on the plate, it should not be missing from the menu in any home-style restaurant. In Germany, Labskaus is served with a rollmops, gherkin and fried egg.



Bremens offers a wide variety of restaurants. Below you'll find some traditional suggestions. But feel free to explore the city and try the ones appealing to you. Please note that for bigger groups a reservation is helpful to guarantee a seat.

Bremen Ratskeller:

The traditional restaurant Bremer Ratskeller offers many delicious dishes from Bremen's cuisine. On the menu, for example, you'll find traditional sailor's rissoles, original Bremer Knipp or "Bremer Pannfisch". Of course, the North German cheese platter and home-made Bremen red fruit jelly are also a must.

Address: Am Markt, 28195 Bremen

Beck's in'n Snoor:

In the centre of the beautiful Schnoor district you will find the restaurant "Becks im Schnoor" or "Beck's in'n Snoor". The menu there offers an extensive selection of Bremen dishes. The rustic premises offer cosy, traditional Bremen hospitality.

Address: Schnoor 35, 28195 Bremen

Bremer Teestübchen in the Schnoor:

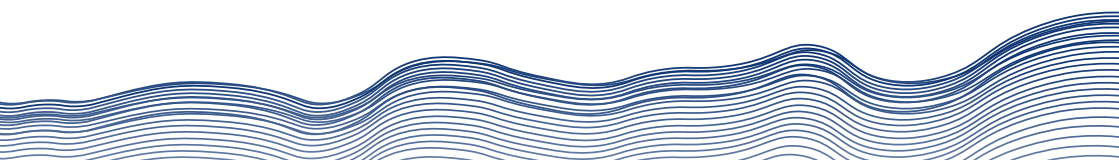
You can also find delicious Bremen specialities in the Teestübchen restaurant in Schnoor. Among other things, you can look forward to Bremer Knipp with roast potatoes, Bremer plaice or matjes fillets. Why not treat yourself to a delicious Bremen red fruit jelly or "grandmother's style" rice pudding for dessert?

Address: Wüstestätte 1, 28195 Bremen

Knurrhahn:

Bremen's oldest fish restaurant welcomes you in the heart of the city centre. In addition to various fish dishes, there is also a takeaway service for guests in a hurry, as well as fish sandwiches and homemade fish cakes.

Address: Schüsselkorb 32, 28195 Bremen



About the Schlachte:

Right in the heart of the city centre and just a few steps away from the market square and the Bremen Town Musicians is the Weser promenade Schlachte, Bremen's maritime mile right on the water.

Many small and large restaurants with a variety of offers for every taste and budget are lined up here. Numerous boat trips depart from the Schlachte, and in summer the beer gardens and boats with a view of the water attract visitors.

Restaurants with a special ambience:

Alexander von Humboldt - The Ship:

For hungry sailors and mermaids, there is plenty to discover on the Alexander von Humboldt ship. You can dine on Bremen dishes such as Labskaus with fried egg, rollmops, beetroot and gherkin in a rustic atmosphere. There is also delicious fried Knipp on brown bread with fried egg and gherkin.

Address: Anleger, Schlachte 1a, 28195 Bremen

Pannekoekschip - Admiral Nelson

The faithful replica of a frigate offers peace and relaxation in the centre of the city. You can enjoy the atmosphere on all decks and look out over the Weser. With soups, salads, ice-cream sundaes and various pancakes, there is something for every taste.

Address: Schlachte Anleger 1, 28195 Bremen



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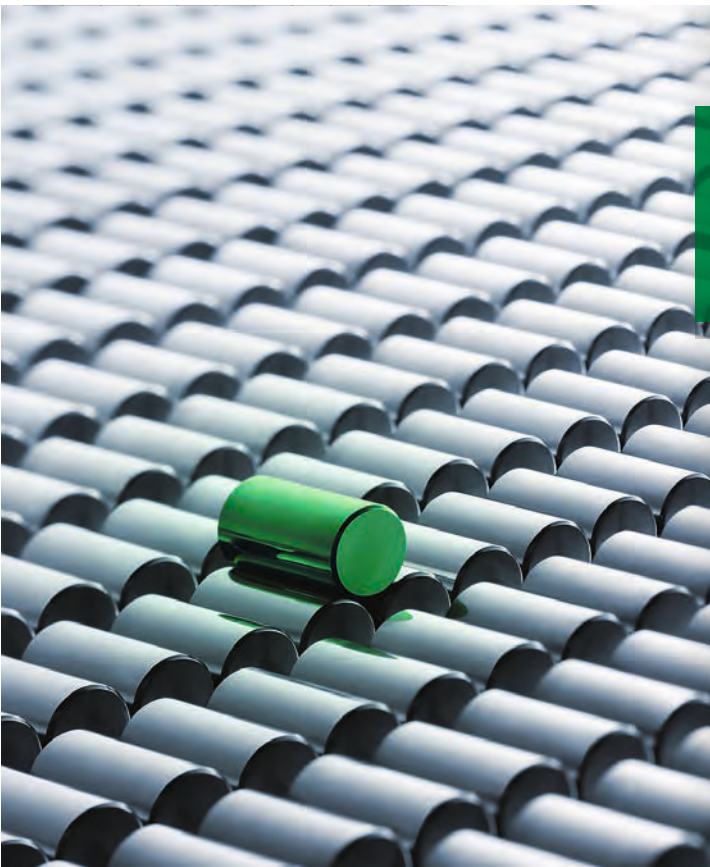
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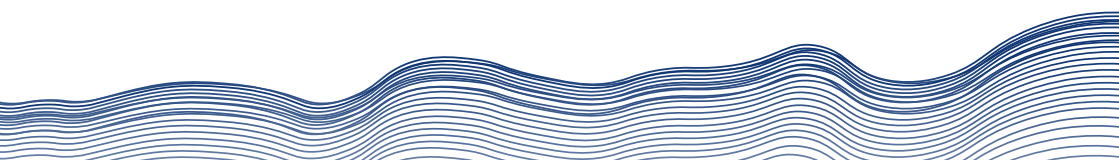




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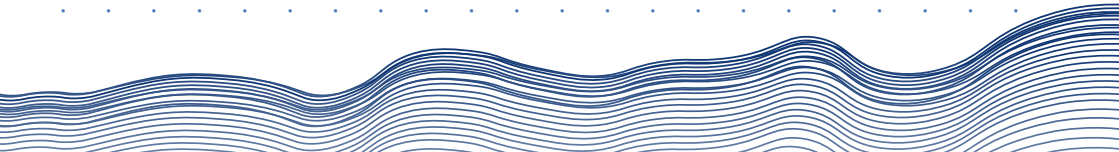
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