



89th Annual Meeting

of the International Association of Applied
Mathematics and Mechanics

March 19-23, 2018
Munich, Germany

2018

Invitation

The International Association of Applied Mathematics and Mechanics (GAMM e.V.) cordially invites you to its 89th Annual Scientific Conference, from March 19 - 23, 2018. On behalf of DGLR and GAMM, we also invite you to the 61th Ludwig Prandtl Memorial Lecture.

We invite all GAMM members to the regular General Assembly of GAMM on Wednesday, March 21, 2018.

Heike Faßbender, President

Michael Kaliske, Secretary

Venue

The GAMM Annual Meeting 2018 will be hosted by the Technische Universität München.

It will take place in the city of Munich at the Main Campus located in the heart of the capital of Bavaria, in the vibrant Maxvorstadt district. The surrounding area, called Kunstareal, is a unique mélange of art, culture and knowledge, glorious historical buildings, plazas and museums as well as outstanding annexes and new buildings designed by famous international architects. Moreover, spring is also a great season to enjoy the spirit and the beauty of upper Bavaria during the days prior or after the conference.

Local organizing committee

Chair

Gerhard Müller
Michael Ulbrich

Core

Gerhard Müller
Michael Ulbrich
Wolfgang A. Wall
Barbara Wohlmuth

Extended

Kai-Uwe Bletzinger
Hans J. Bungartz
Fabian Duddeck
Massimo Fornasier
Michael W. Gee
Thomas Huckle
Oliver Junge
Ernst Rank
Daniel Rixen
Elisabeth Ullmann

**Programme
Committee**

Marco Cicalese, Munich
Wolfgang Ehlers, Stuttgart
Heike Faßbender, Braunschweig
Michael Günther, Wuppertal
Stefan Hartmann, Clausthal
Roland Herzog, Chemnitz
Günter Hofstetter, Innsbruck
Michael Kaliske, Dresden
Sven Klinkel, Aachen

Dorothee Knees, Kassel
Daniel Kressner, Lausanne
Gerhard Müller, Munich
Ralf Müller, Kaiserslautern
Timo Reis, Hamburg
Oliver Rheinbach, Freiberg
Michael Ulbrich, Munich
Christoph Woernle, Rostock

Plenary Lectures – Mathematics

- 1 **Volker Mehrmann** (Berlin, Germany)
tba
- 2 **Tinsley Oden** (Austin, USA)
tba
- 3 **Marc Peletier** (Eindhoven, Netherlands)
tba
- 4 **Joachim Weickert** (Saarbrücken, Germany)
tba

Plenary Lectures – Mechanics

- 1 **Alexander Lion** (Munich, Germany)
tba
- 2 **Martin Oberlack** (Darmstadt, Germany)
tba
- 3 **Peter Eberhard** (Stuttgart, Germany)
tba
- 4 **Laura de Lorenzis** (Braunschweig, Germany)
tba

Special Lectures

Ludwig Prandtl Memorial Lecture
tba

Public Lecture

Martin Schleske, Master Violin Maker (Landsberg am Lech, Germany)
tba

Preliminary Timetable

	Monday 19.03.18	Tuesday 20.03.18	Wednesday 21.03.18	Thursday 22.03.18	Friday 23.03.18
8: 30 45			Sections		
9: 00 15 30 45		Sections	Coffee Break Poster Session	Sections	Sections
10: 00 15 30 45		Coffee Break	R. v. Mises Lecture	Coffee Break	Coffee Break
11: 00 15 30 45		Plenary 2		Plenary 4	Plenary 7
12: 00 15 30 45		Plenary 3	GAMM General Assembly	Plenary 5	Plenary 8
13: 00 15 30 45	Opening	Lunch Break	Lunch Break + YAMM Lunch	Lunch Break	Closing
14: 00 15 30 45	Prandtl Lecture	Minisymposia + DFG-PP Sessions	Sections	Sections	
15: 00 15 30 45	Plenary 1				
16: 00 15 30 45	Coffee Break	Coffee Break Poster Session	Coffee Break	Coffee Break	
17: 00 15 30 45	Young Researchers Minisymposia	Sections	Sections	Plenary 6	
18: 00 15 30 45				Sections	
19: 00 15 30 45	Welcome Reception				
20: 00 15 30 45		Public Lecture	Conference Dinner		
21: 00 15 30 45					

DFG-PP (DFG Priority Programme); YAMM (Young Academics in Applied Mathematics and Mechanics)

Minisymposia

- 1 Adaptive Control with Performance Guarantees**
Organizers: Thomas Berger (Hamburg)
Stephan Trenn (Kaiserslautern)
- 2 Computational Interdisciplinary Modeling**
Organizers: Alexander Ostermann (Innsbruck, Austria)
- 3 Experimental Mechanics**
Organizers: Stefan Diebels (Saarland)
Stefan Hartmann (Clausthal-Zellerfeld)
- 4 High-Performance Computing for Continuum Mechanical Problems**
Organizers: Matthias Bolten (Kassel)
Andrea Walther (Paderborn)
- 5 PDE Constrained Optimization under Uncertainty**
Organizers: Martin Stoll (Magdeburg)

Young Researchers' Minisymposia

- 1 Isogeometric Methods**
Organizers: Stefanie Elgeti (Aachen)
Wolfgang Dornisch (Kaiserslautern)
- 2 Mechanics of porous cellular materials**
Organizers: Anne Jung (Saarland)
Ameya Rege (Aachen)
- 3 Non-Standard Mixed Finite Element Schemes for Solid Mechanics**
Organizers: Fleurianne Bertrand (Duisburg-Essen)
Friederike Hellwig (Berlin)
- 4 Optimal Design and Control of Multibody Systems**
Organizers: Karin Nachbagauer (Wels, Austria)
Alexander Held (Hamburg)
- 5 Variational Aspects of Multiscale Modelling in Materials Science**
Organizers: Elisa Davoli (Vienna, Austria)
Manuel Friedrich (Vienna, Austria)

GAMM related DFG Priority Programmes

- 1 **PP 1748 Reliable Simulation Techniques in Solid Mechanics. Development of Non-Standard Discretization Methods, Mechanical and Mathematical Analysis**
Organizers: Jörg Schröder (Duisburg-Essen)

- 2 **PP 1798 Compressed Sensing in Information Processing (CoSIP)**
Organizers: Gitta Kutyniok (Berlin)
Rudolf Mathar (Aachen)

- 3 **PP 1886 Polymorphic Uncertainty Modelling for the Numerical Design of Structures**
Organizers: Michael Kaliske (Dresden)

- 4 **PP 1897 Calm, Smooth and Smart - Novel Approaches for Influencing Vibrations by Means of Deliberately Introduced Dissipation**
Organizers: Peter Eberhard (Stuttgart)

- 5 **PP 1962 Non-Smooth and Complementarity-Based Distributed Parameter Systems: Simulation and Hierarchical Optimization**
Organizers: Michael Hintermüller (Berlin)

- 6 **PP 2013 Property Improvements of Components by Metal Forming Induced Residual Stresses**
Organizers: Wolfram Volk (Munich)

- 7 **PP 2020 Cyclic Deterioration of High-Performance Concrete in an Experimental-Virtual Lab**
Organizers: Ludger Lohaus (Hannover)

Sections

- S 1 Multi-body dynamics**
Organizers: Thomas Berger (Hamburg)
Robert Seifried (Hamburg)
- S 2 Biomechanics**
Organizers: Sandra Klinge (Dortmund)
Roger Sauer (Aachen)
- S 3 Damage and fracture mechanics**
Organizers: Björn Kiefer (Freiberg)
Christian Linder (Stanford, USA)
- S 4 Structural mechanics**
Organizers: Christoph Adam (Innsbruck, Austria)
Johannes Gerstmayr (Innsbruck, Austria)
- S 5 Nonlinear oscillations**
Organizers: Alfons Ams (Freiberg)
- S 6 Material modeling in solid mechanics**
Organizers: Ralf Denzer (Lund, Sweden)
Andreas Menzel (Dortmund)
- S 7 Coupled problems**
Organizers: Alexander Düster (Hamburg)
Ralf Jänicke (Gothenburg, Sweden)
- S 8 Multiscales and homogenization**
Organizers: Daniel Balzani (Dresden)
Thomas Böhlke (Karlsruhe)
- S 9 Laminar flows and transition**
Organizers: Michael Manhart (Munich)
- S 10 Turbulence and reactive flows**
Organizers: Nikolaus A. Adams (Munich)
Wolfgang Schröder (Aachen)
- S 11 Interfacial flows**
Organizers: Dieter Bothe (Darmstadt)
Michael Schlüter (Hamburg)
- S 12 Waves and acoustics**
Organizers: Sabine Langer (Braunschweig)
Martin Schanz (Graz, Austria)
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- S 13 Flow control**
Organizers: Steven L. Brunton (Seattle, USA)
Bernd Noack (Orsay, France)
- S 14 Applied analysis**
Organizers: Marco Cicalese (Munich)
Daniel Matthes (Munich)
- S 15 Uncertainty Quantification**
Organizers: Claudia Schillings (Mannheim)
Tim Sullivan (Berlin)
- S 16 Optimization**
Organizers: Moritz Diehl (Freiburg)
- S 17 Applied and numerical linear algebra**
Organizers: Iveta Hnětynková (Prague, Czech Republic)
Robert Luce (Lausanne, Switzerland)
- S 18 Numerical methods for differential equations**
Organizers: Lars Grasedyck (Aachen)
Daniel Peterseim (Augsburg)
- S 19 Optimization of differential equations**
Organizers: Irwin Yousept (Duisburg-Essen)
Antoine Laurain (São Paulo, Brasil)
- S 20 Dynamics and control**
Organizers: Timm Faulwasser (Karlsruhe)
Oliver Junge (Munich)
- S 21 Mathematical image processing**
Organizers: Felix Kraemer (Munich)
Benedikt Wirth (Münster)
- S 22 Scientific computing**
Organizers: Matthias Bolten (Kassel)
- S 23 Applied operator theory**
Organizers: Felix Schwenninger (Hamburg)
Andras Batkai (Wuppertal)
- S 24 History of mechanics and history, teaching and popularization of mathematics**
Organizers: Peter Eberhard (Stuttgart)
Herbert Mang (Vienna, Austria)
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Registration

Registration

Participants are required to register. Please note that the registration fee includes the conference dinner, but not the accommodation.

Online registration will be possible after September 1st, 2017, at the website

<http://gamm2018.de>

and will expire on February 5th, 2018, while registration will be still possible on site. Online registration is recommended.

Conference fee	Until Dec. 18, 2017	After Dec. 18, 2017
GAMM members (with or without contribution)	305 €	355 €
Non-Members (with or without contribution)	395 €	445 €
Accompanying Person	85 €	85 €

After February 5th, 2018, only on-site registration and payment is possible.

Conference dinner

The conference dinner is included in the conference fee.

Registration fee includes

- Abstracts (digital)
- Final programme
- Public lecture
- Coffee breaks
- Conference dinner
- Welcome reception
- Certificate of attendance

Accompanying persons

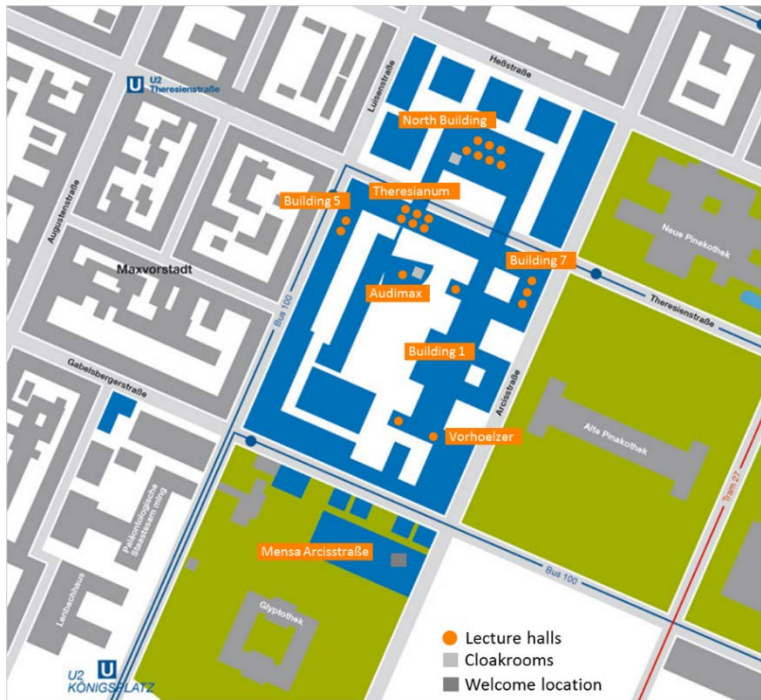
- Are registered by the related participant
- Conference Dinner & Welcome Reception are included
- Free access to the public lectures

Companion programme

- The Kunstareal experience in the heart of Munich
- BMW Welt and Museum

The tours will be offered starting from a minimum number of participants. For further details, please see "Social programme" at the website.

Locations



Foyer of the Audimax: registration, coffee break

Foyer of the North Building: info, coffee break

Audimax: opening, plenary lectures, Prandtl lecture, Richard von Mises lecture and public lecture, general assembly, closing

Mensa Arcisstraße: welcome reception, lunch (optional)

Lecture halls of the North Building: minisymposia, young researchers' minisymposia

Lecture halls (all buildings): sections

Vorhoelzer Forum: YAMM-lunch

Campus Info:

TUM in Munich: <https://www.tum.de/en/about-tum/our-university/locations/#c462>

Room finder: <https://portal.mytum.de/campus/roomfinder>

Accommodation

There are plenty of hotels available near the conference venue.

These can be found via:

- Official City of Munich website: <http://www.muenchen.de/int/en/accomodation-hotels.html>
- Munich Tourism service: <https://tportal.toubiz.de/muenchende/ukv?lang=en>

Conference Office

Conference office Francesca Taddei
Room N1148, Arcistraße 21, 80333 Munich
gamm2018@tum.de

Opening hours	Monday,	March 19	8:00 am - 6:30 pm
conference office	Tuesday,	March 20	8:00 am - 6:30 pm
	Wednesday,	March 21	8:00 am - 6:30 pm
	Thursday,	March 22	8:00 am - 6:30 pm
	Friday,	March 23	8:00 am - 2:00 pm

Conditions and cancellation Any changes and cancellations must be done in written form and sent to the conference office at gamm2018@tum.de

Reimbursement. In case of written cancellation until **February 4, 2018**, payments will be fully refunded minus 25,- EUR handling fee. For cancellations after this date reimbursement is not possible. Cancellation notification must be confirmed by the conference office. Reimbursements are settled after the conference.

Hotel reservations are at the participant's own responsibility. Please check your hotel's conditions in case of cancellation.

Forms of Payment

Payment can be made by credit card or by bank transfer (Bank transfer is preferred).

Please transfer your conference fee to the account below. Please transfer the whole amount.

Beneficiary	Technische Universität München (TUM)
Bank name	Bayerische Landesbank München / BLZ
Bank code	700 500 00
Code number	0002.0171.7437/INVOICE No./GAMM 2018
IBAN	DE10 7005 0000 0000 0248 66
BIC (SWIFT)	BYLADEMM
Tax ID:	DE 195 822 483

Paying with credit cards (only Mastercard and VISA card) is possible **during the online and on-site registration.**

Contributing a Short Communication/Minisymposium Talk

Guidelines for short communications and minisymposium talks

All participants are invited to submit an abstract for a short communication in one of the sessions (**20 minutes including discussion**). For a contribution in a minisymposium an explicit invitation by the respective organizers is mandatory.

Abstracts

If you wish to present a short communication or have been invited to contribute a minisymposium talk, please submit an abstract for your contribution, which will serve as the basis for the decision on the acceptance.

Authors are kindly requested to write the abstract in English.

Each participant is allowed to present one paper only.

The collected abstracts will be published online.

Submission of abstracts

Submission of abstracts will be available for registered participants during the registration process. Online submission is recommended via

<http://gamm2018.de>

Please submit your abstract before

Tuesday, December 4th, 2017.

Classification

Please classify your paper by selecting the appropriate category during the online submission.

Additionally, please give a set of keywords related to the abstract.

As a reference, you can also find standard classifications of topics at:

- Mathematical Reviews. Subject Index 2010
<http://www.ams.org/msc/msc2010.html>
- Applied Mechanics Reviews
Index to Volume 43 (1990), pp. 371-375

Publication of Lectures

Plenary lectures Plenary lectures may be published in the regular issues of ZAMM ("Zeitschrift für Angewandte Mathematik und Mechanik").

**Papers presented
in minisymposia,
YR-minisymposia,
and in sections**

Papers presented at minisymposia and short communications may be published electronically in PAMM ("Proceedings in Applied Mathematics and Mechanics").

The papers are strictly limited to:

- 4 pages for a contribution to a minisymposium, a YR-minisymposium, a DFG-PP section or a special topic lecture of a section
- 2 pages for all contributed sessions

The editors reserve the right to deny publication of a manuscript based on a referee's judgment. The papers need to be prepared in accordance with Wiley's Author's Instructions for Publication at

www.wiley.com

Papers have to be submitted **after the conference until June 15, 2018**, via the website <http://gamm2018.de>

Childcare

Attendee are responsible for making their own arrangements for child care. It is possible to use the flexible child care for children from one year up to 10 years in the kid-friendly and equipped recreation room "Familienzimmer", inside one of the conference building (the Building N1, Theresienstraße 90). The flexible child care service can be made available from Monday to Friday from 8:00 am to 6:30 pm.

For appropriate planning, we kindly ask you to indicate your interest in a childcare service while registering for the conference and no later than February 4th, 2018. We will then contact you and give you a timely feedback to your service requests and the child care costs.

For more details about the kid-friendly recreation room: <https://www.ei.tum.de/struktur-und-profil/diversity/familienzimmer/>

Local Contacts

Chairmen Gerhard Müller gerhard.mueller@tum.de
Michael Ulbrich mulbrich@ma.tum.de

Conference office Francesca Taddei
Room N1148, 1st Floor, North Building
Arcistraße 21, 80333 Munich
gamm2018@tum.de

Important Dates

Online registration starts	September 1, 2017
Registration deadline for talks (abstract upload)	December 4, 2017
Deadline for early registration fee	December 18, 2017
Deadline for payment in case an abstract has been submitted	February 5, 2018
Online registration <i>After this date only on-site registration is possible</i>	February 5, 2018
Submission deadline for PAMM proceedings	June 15, 2018

Special Events

Monday, March 19		<p>Opening 13:00 – 14:00 Foyer of the Audimax</p> <p>Ludwig Prandtl Memorial Lecture 14:00 – 15:00 Audimax</p> <p>Welcome reception 18:30 Mensa Arcistrasse</p>
Tuesday, March 20		<p>Public lecture 19:30 Audimax</p> <p>Poster session 16:00 – 16:30 Foyer of the North Building</p>
Wednes., March 21		<p>Poster session 09:30 – 10:00 Foyer of the North Building</p> <p>Richard von Mises lecture 10:00 – 11:30 Audimax</p> <p>General assembly 11:30 – 13:00 Audimax</p> <p>YAMM lunch (Young Academics in Applied Mathematics and Mechanics): Career Opportunities for Young Academics 13:00 – 14:00 Vorhoelzer Forum</p> <p>Conference dinner 20:00 Löwenbräukeller, Nymphenburger Str. 2, 80335 München</p>
Friday, March 23		<p>Closing 13:00 – 14:00 Audimax</p>

Traveling to the Munich City Campus

Address:

Arcisstraße 21, 80333 Munich



... bike

City plans for biking and bike renting

<http://www.muenchen.de/int/en/traffic/biking.html>



... car

Google maps: goo.gl/1ox4xz

Deutsche Bahn: <https://www.bahn.com>

MVV Journey Planner: <http://www.mvv-muenchen.de>



... train

Train: Munich Central Station



... tram

Subway U2: Königsplatz or Theresienstraße



... bus

Tram 27/28: Pinakotheken

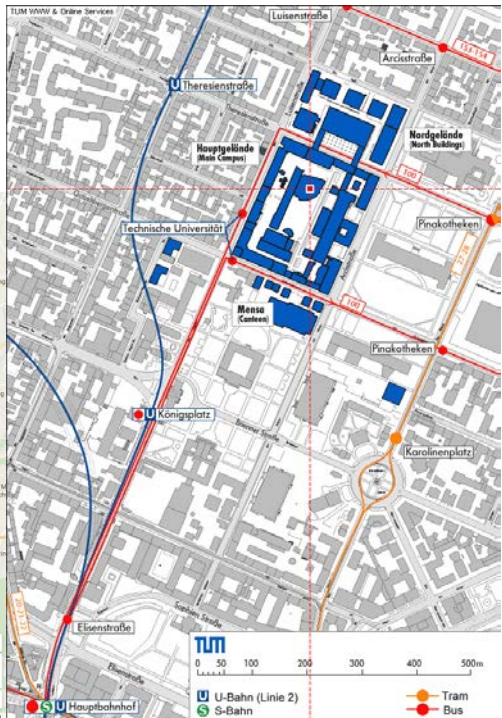
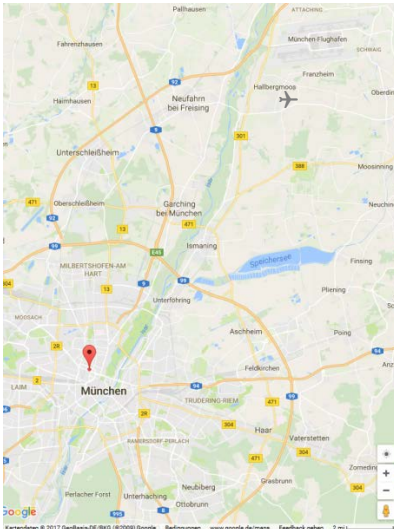
Bus 100: Technische Universität



... plane

Munich Airport: <https://www.munich-airport.com/>

A train ride of 40 minutes from Munich Airport to the city center via suburban trains S1 and S8



Venue

The GAMM annual meeting 2018 will be hosted by the Technical University of Munich. It will take place in the city of Munich at the city campus.



The city of **Munich** has a lot of attractions to offer for all tastes, whether you are interested in history, music, architecture or art.

You can discover some of the most stunning sights of Munich by walking around the conference venue: famous museums, impressive churches, the royal palace and wonderful parks.

The Frauenkirche cathedral is the most well-known landmark of Munich. Other great attractions are the impressive New Gothic building of the Neue Rathaus at Marienplatz, the lively and colored Viktualienmarkt with all its delicacies, the beautiful Nymphenburg Palace with the extensive park facilities. Munich has famous landmarks of modern architecture, as the Allianz Arena football stadium, the BMW Welt and the famous tent-structure of the Olympic Stadium. Individual tours and day trips can be found in:
<http://www.muenchen.de>



Auditorium Maximum (Audimax): is the largest lecture hall of the TUM and was sponsored by Werner von Siemens. It was designed by Rudolf Wienands, who has been a professor at TUM since 1975.

Events:

- Opening
- Plenary and public lectures
- Minisymposia
- Young researchers minisymposia
- Registration
- General assembly
- Closing



Lecture halls: are located in the north part of the campus, in different adjacent buildings. The passages, which connect the building complexes, are always at the first floor. All TUM room numbers at the main campus have four-digits: the first digit indicates the floor, the second digit the building, the third and the fourth digit the room number.

By walking from one room to the other, you will come across several inspiring spots: the statue of Georg Simon Ohm, an exposition piece of the Olympic Park tent-roof, an interactive installation with a half-bodied BMW and much more... that tells the past and points at the future.

Events:

- Contributed sessions
- Minisymposia
- Poster session

Companion Programme

The local organizers suggest the following activities.

Tour 1 - The Kunstareal experience in the heart of Munich

A guided exploration of the museum area of Munich.

Price: 7 to 10 € per person
Reservation: During the registration



Kunstareal München is located right at the heart of Munich and with its museums and colleges is one of Europe's most important cultural hubs. Across an area of 500 x 500 meters, in the middle of the vibrant Maxvorstadt district, visitors will encounter a unique mélange of art, culture and knowledge. Located between the sweeping Königsplatz and Theresienstrasse, Kunstareal offers an extraordinary diversity of museums with works ranging from the glorious leading dynasties of Ancient Egypt via the Classical world up to the present. A total of 18 museums and exhibition halls, over 40 galleries, six renowned international colleges and countless cultural institutions are all in the immediate vicinity, easily accessible by foot. Day- and group-tickets are available and will be organized upon request.

For details see: <https://kunstareal.de/en/what-is-kunstareal/>

Tour 2 - BMW Welt and Museum

A guided exploration of the BMW Welt and Museum.

Price: BMW Welt is free of charge.
BMW Museum 10 € per person
Reservation: During the registration



Experience the fascinating architecture of BMW Welt as well as the BMW Group and its brands under one roof. BMW Welt's futuristic architecture is one of a kind. A cloud-like impression is created by a double cone supported on just twelve hinged columns, giving visitors the feeling that the building is floating. After visit you can get an impression of the famous Olympic Stadium.

For details see: <http://www.bmw-welt.com/en/index.html>

...and more

We recommend our website "Social Program" for more information on:

- Guided tours through Munich
- Englischer Garten, Marienplatz, Deutsches Museum
- Thermal baths in Erding
- Day trips for accompanying persons
- Nearby cities: Augsburg, Starnberg Lake, Salzburg