



GESELLSCHAFT für
ANGEWANDTE MATHEMATIK und MECHANIK e.V.
INTERNATIONAL ASSOCIATION of APPLIED MATHEMATICS and MECHANICS

86th Annual Meeting
of the International Association
of Applied Mathematics and Mechanics
March 23-27, 2015
Lecce, Italy



Preliminary Program
2015



**UNIVERSITÀ
DEL SALENTO**

jahrestagung.gamm-ev.de



Invitation

The GAMM e.V. cordially invites you to its 86th Annual Scientific Conference in Lecce - Italy, from March 23 to March 27, 2015.

On behalf of the DGLR and the GAMM we also invite you to the 58th Ludwig Prandtl Memorial Lecture, which opens the conference program on Monday, March 23.

We invite all GAMM members to the regular General Assembly of GAMM e.V. during the conference at the Grand Hotel Tiziano - Room Tiziano, on Wednesday, March 25.

The President of GAMM
Volker Mehrmann

The Secretary of GAMM
Michael Kaliske

Venue

The conference takes place at the Grand Hotel Tiziano in Lecce - Italy.

Capital of the homonymous province and the cultural fulcrum of Salento (Apulia), Lecce is one of the most beautiful art cities in southern Italy. Known as the "Florence of the South," Lecce knows how to surprise and intrigue visitors and locals alike: its ancient Messapian origins and its archaeological ruins, left behind after Roman domination, fuse with the richness and exuberance of the Baroque churches and palaces (typically from the 1600s).

Lecce and Salento, with the beauty of the historic centers, of the landscapes and the coasts, attract tourists from all over the world.

Local Organizing Committee

Chairmen

Giorgio Zavarise
Michele Campiti
Domenico Laforgia

Scientific Secretary

Paola Cinnella

Local Committee

Angela Albanese
Daniela Boso
Rossana Dimitri
Massimiliano Gei
Giuseppe Sciumè
Marco Trullo
Raffaele Vitolo

Program Committee

Helmut Abels, Regensburg
Marek Behr, Aachen
Peter Betsch, Siegen
Christian Bucher, Wien
Wolfgang Ehlers, Stuttgart
Rolf Findeisen, Magdeburg
Holger Foysi, Siegen
Michael Günther, Wuppertal
Marlis Hochbruck, Karlsruhe

Birgit Jakob, Wuppertal
Michael Kaliske, Dresden
Sigrid Leyendecker, Erlangen
Michael Manhart, München
Volker Mehrmann, Berlin
Andreas Menzel, Dortmund
Volker Schulz, Trier
Peter Wriggers, Hannover

SCIENTIFIC PROGRAM

Preliminary Timetable

Time	Monday 23	Tuesday 24	Wednesday 25	Thursday 26	Friday 27
9:15-30-45		Contributed sessions	Plenary Lecture 5	Contributed sessions	Contributed sessions
10:15-30-45	Registration		von Mises prize lecture		
11:15-30-45		Coffee Break	Coffee Break	Coffee Break	Coffee Break
12:15-30-45		Plenary Lecture 2	General Assembly	Plenary Lecture 6	Contributed sessions
13:15-30-45	Opening University Chorus performance	Lunch	Lunch	Lunch	
14:15-30-45	Prandtl Lecture	Plenary Lecture 3	Contributed sessions	Plenary Lecture 7	
15:15-30-45	Plenary Lecture 1	Plenary Lecture 4		Plenary Lecture 8	
16:15-30-45	Coffee Break	Coffee Break Poster session	Coffee Break	Coffee Break Poster session	
17:15-30-45	Minisymposia & Young Reserachers' Minisymposia	Contributed sessions	Contributed sessions	Contributed sessions	
18:15-30-45					
19:15-30-45	Opening reception	Public lecture F. D'Andria			
20:15-30-45					
21:15-30-45			Conference dinner		

Plenary Lectures - Mathematics

- 1 **Moritz Diehl** (Freiburg, Germany)
Nonlinear optimal control for airborne wind energy systems
- 2 **Giovanni Galdi** (Pittsburgh, Pennsylvania)
Liquid-solid interactions: some new results and open questions
- 3 **Daniel Kressner** (Lausanne, Switzerland)
Low rank techniques for high-dimensional problems in engineering and data-analysis
- 4 **Enrique Zuazua** (Bilbao, Spain)
Optimal placement of sensors and actuators for waves in homogeneous and heterogeneous media

Plenary Lectures - Mechanics

- 1 **Nikolaus Adams** (München, Germany)
Particle methods for complex flows of complex fluids
- 2 **Ferdinando Auricchio** (Pavia, Italy)
Shape memory alloys: from recent modeling proposals to cardiovascular device simulations
- 3 **Thomas Böhlke** (Karlsruhe, Germany)
Micromechanics based modelling of applied materials
- 4 **Stanislaw Stupkiewicz** (Warsaw, Poland)
Interfacial energy and size effects in evolving martensitic microstructures

Special Lectures

Ludwig Prandtl Memorial Lecture
Not defined

Public Lecture
Francesco D'Andria (Lecce, Italy)
Do the Gates to the Hell really exist?

Minisymposia

- 1 **Multi-scale modeling of ferroic functional materials**
Organizers: Marc-Andre Keip (Stuttgart)
 Björn Kiefer (Dortmund)
 Jörg Schröder (Duisburg – Essen)
 Bob Svendsen (Aachen)

- 2 **Applications of the virtual element method**
Organizers: Franco Brezzi (Pavia)

- 3 **Topological defects in solids**
Organizers: Sergio Conti (Bonn)
 Georg Dolzhan (Regensburg)

- 4 **Optimal control and hybrid systems**
Organizers: Sina Ober-Blobbaum (Paderborn)
 Stefan Trenn (Paderborn)

- 5 **Mechanics in an interdisciplinary, multiphysics environment, transforming materials sciences and biology**
Organizers: Christian Hellmich (Wien)
 Wolfgang A. Wall (München)

Young Researchers' Minisymposia

- 1 **Analysis, applications and approximation of constrained PDEs**
Organizers: Robert Altmann (Berlin)
 Jan Heiland (Magdeburg)

- 2 **Phase field modeling in mechanics and applied mathematics**
Organizers: Jan Giesselmann (Stuttgart)
 Charlotte Kuhn (Kaiserslautern)

- 3 **Discretization aspects in PDE constrained optimization**
Organizers: Ira Neitzel (München)
 Winnifried Wollner (Hamburg)

- 4 **Co-/Sparsity, inverse problems and compressive imaging**
Organizers: Stefania Petra (Heidelberg)
 Andreas Weinmann (München)

- 5 **Topics in low-rank tensor approximation**
Organizers: Andre Uschmajew (Lausanne)
 Bart Vandereycken (Princeton)

Sections

- S 1 Multi-body dynamics**
Organizers: Carla Bottasso (München)
Thomas Buschmann (München)
Pascal Ziegler (Stuttgart)
- S 2 Biomechanics**
Organizers: Udo Nackenhorst (Hannover)
Franz G. Rammerstorfer (Wien)
Giuseppe Sciumè (Lecce)
- S 3 Damage and fracture mechanics**
Organizers: Stefano Invernizzi (Torino)
Ralf Müller (Kaiserslautern)
Thomas Seelig (Karlsruhe)
- S 4 Structural mechanics**
Organizers: Josef Eberhardsteiner (Wien)
Mikhail Itskov (Aachen)
Anna Pandolfi (Milano)
- S 5 Nonlinear oscillations**
Organizers: Michael Hanss (Stuttgart)
Paolo Maremonti (Napoli)
Utz von Wagner (Berlin)
- S 6 Material modeling in solid mechanics**
Organizers: Luigi Gambarotta (Aachen)
Andreas Menzel (Dortmund)
Valentina Salomoni (Padova)
- S 7 Coupled problems**
Organizers: Stefan Diebels (Saarbrücken)
Bernd Markert (Aachen)
Bai-Xiang Xu (Darmstadt)
- S 8 Multiscales and homogenization**
Organizers: Daniela Boso (Padova)
Stefan Löhnert (Hannover)
Roger Sauer (Aachen)
- S 9 Laminar flows and transition**
Organizers: Christoph Brücker (Freiberg)
Pietro De Palma (Bari)
Jean-Cristophe Robinet (Stuttgart)
- S 10 Turbulence and reactive flows**
Organizers: Andreas Kempf (Duisburg – Essen)
Heinz Pitsch (Aachen)
Vittoria Salvetti (Pisa)

- S 11 Interfacial flows**
Organizers: Gunther Brenner (Clausthal)
Jochen Fröhlich (Dresden)
Christiano Marchioli (Udine)
- S 12 Waves and acoustics**
Organizers: Xavier Gloerfelt (München)
Michael Manhart (München)
Jörg Sesterhenn (Berlin)
- S 13 Flow control**
Organizers: Alessandro Bottaro (Genova)
Holger Foysi (Siegen)
Paolo Luchini (Salerno)
- S 14 Applied analysis**
Organizers: Maurizio Grasselli (Milano)
Dorothee Knees (Kassel)
Elisabetta Rocca (Berlin)
- S 15 Applied stochastic**
Organizers: Christian Bucher (Wien)
Paola Cinnella (Lecce)
Daniel Straub (München)
- S 16 Optimization**
Organizers: Jean-Antoine Désidéri (Trier)
Valentino Pediroda (Trieste)
Stephan Schmidt (Würzburg)
- S 17 Applied and numerical linear algebra**
Organizers: Stefan Güttel (Manchester)
Nicola Mastronardi (Bari)
Stefano Serra Capizzano (Varese)
- S 18 Numerical methods for differential equations**
Organizers: Claus D. Munz (Stuttgart)
Tiziano Politi (Bari)
Christian Rohde (Stuttgart)
- S 19 Optimization of differential equations**
Organizers: Alfio Borzi (Würzburg)
Michael Herty (Aachen)
Boris Vexler (München)
- S 20 Dynamics and control**
Organizers: Fabio Ancona (Padova)
Thomas Berger (Ilmenau)
Matthias Voigt (Magdeburg)



- S 21 Mathematical image processing**
Organizers: Benjamin Berkels (Aachen)
Stefan Kunis (Osnabrück)
Gianluca Vinti (Perugia)
- S 22 Scientific computing**
Organizers: Carlo Janna (Padova)
Daniel Ruprecht (Lugano)
Kees Vuik (Delft)
- S 23 Applied operator theory**
Organizers: Pietro Aiena (Palermo)
Friedrich Philipp (Berlin)
Michal Wojtylak (Krakau)
- S 24 History of mechanics**
Organizers: Danilo Capecchi (Roma)
Erwin Stein (Hannover)
Patrizia Trovalusci (Roma)

Contributing a Short Communication / Minisymposium Talk

Guidelines for Short Communications and Minisymposium Talks

All participants are invited to present 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 required.

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.

Abstracts may be written in English or German. However, authors are kindly asked to use English.

Each participant is allowed to present one paper only.

The collected abstracts will be published online and distributed to all participants.

Submission of Abstracts

Submission of abstracts will be available to registered participants during the registration process. For information on the registration see the following pages.

Online submission is recommended and will be available at the conference website starting at September 15, 2015

<http://gamm2015.unisalento.it>

Alternatively, if you do not have access to this website, you can send the abstract by regular mail or e-mail to:

Daniela Dell'Anna

Department of Mathematics and Physics
Università del Salento
Via per Arnesano - Ex Collegio Fiorini
73100 Lecce
Italy

E-mail: gamm2015@unisalento.it

Please submit your abstract before **Friday, December 19, 2014**.

Classification

For the coordination of the contributed lectures within the sessions, please classify your paper according to:

- MSC 2000 (Mathematics Subject Classification 2000), or
- AMR (Applied Mechanics Reviews).

You can find these classifications at:

- Mathematical Reviews. Subject Index 2000
<http://www.ams.org/mathscinet/msc/msc.html>
- Applied Mechanics Reviews
Index to Volume 43 (1990), pp. 371-375

Registration

Registration

Conference participants are required to register in advance. Please note that the registration fee includes neither accommodation, nor the conference dinner.

Online registration will be available after September 15, 2015, at the website:

<http://gamm2015.unisalento.it>

and will expire on February 20, 2015, while registration will be still possible on site. Online registration is recommended.

Conference Fees

	Until Dec. 19, 2014	After Dec. 19, 2014
GAMM members* (with or without contribution)	220 €	270 €
Non-Members* (with or without contribution)	310 €	360 €
Bachelor/Master students (without contribution)	0 €	0 €
Accompanying Person	0 €	0 €
Conference Dinner	50 €	50 €

* including doctoral candidates/ PhD students

After February 20, 2015, only on-site registration is possible.

Registration Fee includes

- Access to the scientific sessions and the exhibition
- Abstracts (digital)
- Final Program
- Opening Reception
- Public Lecture
- Coffee Breaks
- Certificate of Attendance

Accompanying persons

- Must be registered by the related participant
- Services, e.g. the conference dinner or excursions, may be booked also through the related participant's account
- Free access for the Opening Reception and the Public Lecture

Companion Program

- Lecce History and Art Tour with visit of Carlo V Castle
- Beyond Baroque: Tour in the countryside S. Maria in Cerrate Abbey, and the proud Acaya Castle
- Guided tour of Gallipoli
- Tour of Castro-Otranto-Muro Leccese, with botanical garden

The excursions require a minimum number of participants. For details, please see "social program" at the website.



Forms of Payment Payment can be made by credit card (Visa, EuroCard / MasterCard) or by bank transfer. Any bank charges must be paid by the participant. The bank account information is also given at the website.

Bank: Banca Sella
Succursale 1D - Lecce 2
Account Holder: Comitato GAMM 2015
IBAN: IT15T0326816001052100841230
Swift-Code: SELB IT 2B
Purpose: **Name(s) of participant(s), GAMM2015**

Confirmation After creating an account, participants will receive a confirmation via e-mail, which is not a registration confirmation. After processing the payment, the registration confirmation will be sent via e-mail.

Conditions and Cancellation Any changes and cancellations must be done in written form and sent to the Conference Office at:

regi_gamm2015@unisalento.it

Reimbursement. In case of written cancellation until **February 20, 2015**, payments will be fully refunded, minus 20,- EUR handling fee. For cancellation after this date no reimbursement is possible. Cancellation notification must be confirmed by the Conference Office. Reimbursements are settled after the conference.

Hotels. Hotel reservations are at the participant's own responsibility. Please check with your hotel the requested charges and deadlines in case of cancellation.

Conference Office and On-site Registration You can register on-site and pick up the conference material at the Registration Desk at the Grand Hotel Tiziano Hall on:

Monday,	March 23	10:00 - 18:30
Tuesday,	March 24	8:30 - 18:30
Wednesday,	March 25	8:30 - 18:30
Thursday,	March 26	8:30 - 18:30
Friday,	March 27	8:30 - 14:00

The Registration Desk will also serve as Conference Office during the conference



Publication of Lectures

Plenary Lectures

Plenary lectures will 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 or a special topic lecture of a section
- 2 pages for a short communication

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 May 31, 2014**, via the website <http://gamm2015.unisalento.it>.

Exceptionally, the papers can be sent directly to the Conference Office at **gamm2015@unisalento.it**.

Local contacts

Chairmen

Giorgio Zavarise	giorgio.zavarise@unisalento.it
Michele Campiti	michele.campiti@unisalento.it
Domenico Laforgia	domenico.laforgia@unisalento.it

Scientific Program

Paola Cinnella	scip_gamm2015@unisalento.it
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Registration & financial issues

Daniela Dell'Anna	regi_gamm2015@unisalento.it
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Accommodation

	acco_gamm2015@unisalento.it
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GAMM 2015 Office

	gamm2015@unisalento.it
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Important Dates

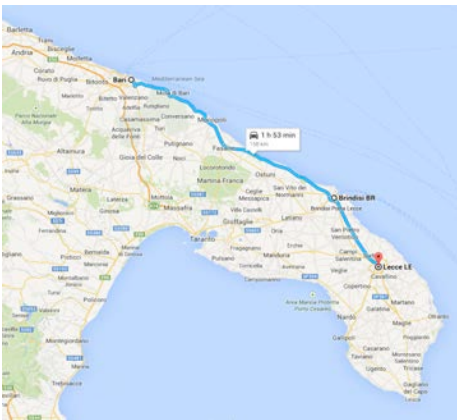
Online registration starts	September 15, 2014
Registration deadline for talks (abstract upload)	December 19, 2014
Deadline for early registration fee	December 19, 2014
Deadline for payment in case an abstract has been submitted	December 31, 2015
Online registration <i>After this date only on-site registration is possible</i>	February 20, 2015
Submission deadline for PAMM proceedings	May 31, 2015

Special Events

Monday,	March 23	<p>Opening 13:00 - 13:30 Grand Hotel Tiziano - Room Tiziano</p> <p>University Chorus Performance 13:30 - 14:30 Grand Hotel Tiziano - Room Tiziano</p> <p>Ludwig Prandtl Memorial Lecture 14:00 - 15:00 Grand Hotel Tiziano - Room Tiziano</p> <p>Opening Reception 19:00 - 21:00</p>
Tuesday,	March 24	<p>GAMM Juniors Poster Exhibition 16:00 - 17:00</p> <p>Public Lecture 19:00 - 20:00 Grand Hotel Tiziano - Room Tiziano</p> <p>Companion program*</p>
Wednesday,	March 25	<p>v. Mises Lectures 10:00 - 11:00 Grand Hotel Tiziano - Room Tiziano</p> <p>General Assembly 11:30 - 12:30 Grand Hotel Tiziano - Room Tiziano</p> <p>Conference Dinner 20:30 - 24:00 Grand Hotel Tiziano</p> <p>Companion program*</p>
Thursday,	March 26	<p>GAMM Juniors Poster Exhibition 16:00 - 17:00</p> <p>Companion program*</p>
Friday,	March 27	<p>Closing 13:30 - 14:00 Grand Hotel Tiziano - Room Tiziano</p>

* The excursions are requiring a minimum of participants. Otherwise, they unfortunately will have to be cancelled (fully refundable).

Traveling to Lecce



By Car:

- On the A14/E55 motorway head in south direction to Bari;
- Take the exit "Bari Nord";
- Follow signs for Brindisi/Lecce and continue on SS16 straight to the Grand Hotel Tiziano.

By Train:

The Lecce railway station is located downtown. Regular direct train services run daily from the major cities (Milano, Bologna, Roma).

The hotel can be reached by taxi in 10 minutes.

For more information: <http://www.trenitalia.com>.

By Plane:

The nearest airport to Lecce is the “Brindisi Papola Casale International Airport”.

There are both domestic and international flights.

Main domestic flights are from Torino, Milano, Verona, Venezia, Bologna, Pisa, Roma.

Main international flights are from Amsterdam, Berlin, Brussels, Klon, Dusseldorf, Frankfurt, Karlsruhe, London Luxembourg, Munich, Paris, Stuttgart, and Zurich.

From the airport you can take the Shuttle Bus to Lecce with stop at the Air Terminal (50 meters from the Grand Hotel Tiziano).

For more information: <http://www.aeroportidipuglia.it>.

A bigger and more connected airport is the "Bari Palese International Airport". From there a shuttle train connecting the airport with the main train station, is available. Then, Bari-Lecce by train takes about 1 hour and 20 minutes.

By Bus:

Some daily coach services are run by private companies from Roma, Milano and Torino.

For more information: <http://www.miccolis-spa.it>, <http://www.marozzivi.it>



Companion Program

Lecce History and Art Tour with visit of Carlo V Castle

Price: 15 € per person

Minimum of participants: 10 persons

A guided exploration of the historical center of Lecce, with time for visiting the the Carlo V Castle.



Program:

2.30 pm: Meeting Point: Grand Hotel Tiziano

2:45 pm: Guided tour of the old center. The walking tour can include Porta Napoli, Piazza Duomo, Porta Rudiae, The Academy of Fine Arts, Palazzo dei Celestini and Palazzo Adorno, Baroque churches St. Anna, St. Irene, St. Matteo, St. Chiara, St. Croce, The Roman Theater and Ampitheater, Piazza St. Oronzo, Chiesa Greca, and Via Palmieri. Hear little known stories and anecdotes as you walk along the picturesque sidestreets of the historic center

4.30 pm: Visit at the Carlo V Castle

5.00 pm: Tour end in Piazza S. Oronzo

Price includes:

- Sightseeing Lecce City Center
- Guide and tour director, entrances

Beyond Baroque: Tour in the countryside S. Maria in Cerrate Abbey, and the proud Acaya Castle

Price: 35 € per person

Minimum of participants: 20 persons

Two wonderful discoveries: an ancient Abbey and a medieval Castle.



Program:

- 2.30 pm: Meeting Point: Grand Hotel Tiziano
- 3:00 pm: Guided tour of S. Maria in Cerrate Abbey
- 4.30 pm: Arrive to the Castle of Acaya and guided tour
- 6.30 pm: Re-entry to the meeting point in Lecce

Price includes:

- Transport by bus from Lecce to Cerrate e Acaya
- Sightseeing Gallipoli City Center
- Guide and tour director, entrances

Guided tour of Gallipoli

Price: 35 € per person

Minimum of participants: 20 persons

Treat yourself to a walking tour in the city of Gallipoli, one of the most important and beautiful of Salento.



Program:

2.30 pm: Meeting Point: Grand Hotel Tiziano

3.20 pm: Arrive at Gallipoli. The itinerary will begin at the gates of the old city, in front of the **Greek Fountain**, an example of Renaissance style inspired by the ancient world. By crossing the bridge between the old center of Borgo Nuovo, you will enter the heart of the city, protected by the **Castle**. Through Via Antonietta De Pace you will arrive at the **Cathedral dedicated to St. Agatha**, a Catania martyr whose relics arrived in Gallipoli. You will then proceed to the narrow streets of the city, admiring the buildings and house courtyards, and along the coast among the numerous '500 churches such as the **Chiesa della Purità**, **Chiesa di San Francesco d'Assisi** and **Chiesa del Rosario**

6.00 pm: Departure for Lecce-the Castle

Price includes:

- Transport by bus from Lecce to Gallipoli
- Sightseeing Gallipoli City Center
- Guide and tour director, entrances

There will be also 1 hour free time for individual program, shopping

Tour of Castro - Otranto

Price: 35 € per person

Minimum of participants: 20 persons

A wonderful guided tour to discover the Adriatic coast.



Program:

- 2.00 pm: Meeting Point: Grand Hotel Tiziano
- 2.40 pm: Arrive at Castro to the panoramic route
- 4.00 pm: Arrival at Otranto, and start tour, which includes the Castle and Cathedral
- 7.00 pm: Departure for Lecce-the Castle

Price includes:

- Transport by bus from Lecce to Castro Otranto and Muro Leccese
- Guide and tour director, entrances

There will be also 1 hour free time for individual program, shopping