PERSONAL INFORMATION   Prof. Dr.-Ing. Giorgio Zavarise

📍 University of Salento
Department of Innovation Engineering,
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73100 Lecce – Italy (office)

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Sex: Male | Date of birth: 27/06/1959 | Nationality: Italian

WORK EXPERIENCE

01/11/2006 - today   **Full Professor of Structural Mechanics**

University of Salento, Faculty of Engineering, Department of Innovation Engineering, 73100 Lecce – Italy

www.unisalento.it

▪ Scientific research on Structural Mechanics and Contact Mechanics
▪ Foreign experience: University of Hannover – Germany
▪ Teaching experience: Courses of Structural Mechanics for Civil, and Mechanical Engineering
▪ Admin experience: Collaboration on writing scientific project proposals.

Business or sector Scientific research

01/01/2010 - today   **Full Professor of Structural Mechanics**

National Institute for Nuclear Physics, Facility of Lecce, 73100 Lecce – Italy

https://web.le.infn.it/web/gruppo1/

▪ Scientific research on Structural Mechanics and Contact Mechanics applied to sub-atomic particles detectors.

Business or sector Scientific research

29/04/2014 – 22/11/2016   **Member of the Building Committee ("Commissione Edilizia")**

University of Salento, Lecce – Italy – www.unisalento.it

▪ Admin experience: Coordination and supervision of building's maintenance, new construction's planning.

Business or sector University governing

01/11/2007 – 30/10/2013   **Rector's Delegate for Facilities Management and Planning**

University of Salento, Lecce – Italy – www.unisalento.it

▪ Admin experience: Coordination and supervision of building's maintenance, new construction's planning, contacts with Regional, Provincial and local governments

Business or sector University governing

01/11/1998 – 31/10/2006   **Associate Professor of Structural Mechanics**

The Turin Polytechnic, Faculty of Engineering II, Department of Structural Engineering and Geotechnics, 10129 Turin, Italy – www.polito.it

- Scientific research on Structural Mechanics and Contact Mechanics
- Foreign experience: University of Hannover – Germany
- Teaching experience: Courses of Structural Mechanics for Civil, and Mechanical Engineering
- Admin experience: Collaboration on writing scientific project proposals

Business or sector Scientific research and teaching

01/12/1993 – 31/10/1998	**Assistant Professor of Structural mechanics**

University of Padua, Faculty of Engineering, Institute of Management Engineering, Padua - Italy

- Scientific research on Structural Mechanics and Contact Mechanics, with application to nuclear fusion experimental machines
- Foreign experience: University of Hannover and University of Darmstadt – Germany
- Sabbatical: January - July 1996 – University of California at Berkeley – Prof. R.L. Taylor
- Teaching experience: Courses of Structural Mechanics for Civil, and Management Engineering
- Admin experience: Collaboration on writing scientific project proposals

Business or sector Scientific research and teaching

01/07/1992 – 30/10/1993	**Post-doc (scholarship)**

University of Padua, Faculty of Civil Engineering, Institute of Constructions, Bridges and Roads – Padua, Italy

- Scientific research on Structural Mechanics and Contact Mechanics, with application to innovative telescopes and nuclear fusion experimental machines
- Foreign experience: University of Hannover and University of Darmstadt – Germany
- Teaching experience: Courses of Structural Mechanics for Civil and Mechanical Engineering
- Admin experience: Collaboration on writing scientific project proposals

Business or sector Scientific research and teaching

01/11/1990 – 30/06/1992)	**Post-doc co-worker and consultant engineer**

University of Padua, Faculty of Civil Engineering, Institute of Constructions, Bridges and Roads – Padua, Italy

- Scientific research on Structural Mechanics and Contact Mechanics, with application to innovative telescopes and nuclear fusion experimental machines
- Foreign experience: University of Hannover and University of Darmstadt – Germany
- Teaching experience: Courses of Structural Mechanics for Civil and Mechanical Engineering

Business or sector Scientific research and teaching

EDUCATION AND TRAINING

01/11/1987 – 31/10/1990	**PhD in Structural Mechanics (with unanimous evaluation of the Committee) – Tutor prof. B.A. Schrefler**	Level 8 EQF

University of Bologna (Consortium among Universities of Bologna, Padua and Ancona), Bologna - Italy

- Studies on Structural Mechanics and Contact Mechanics
- Foreign experience: University of Hannover and University of Darmstadt – Germany
- Teaching experience: Courses of Structural Mechanics for Civil and Mechanical Engineering

25/03/1986 – 30/10/1987	**Scientific co-worker**

University of Padua, Faculty of Civil Engineering, Institute of Constructions, Bridges and Roads – Padua, Italy

- Scientific research on Structural Mechanics and Contact Mechanics, with application to innovative telescopes and nuclear fusion experimental machines

05/10/1978 – 24/03/1986	**Degree (5-years course) in Civil Engineering-Structural Mechanics curriculum – max score 110/110 cum laude**	Level 7 EQF

University of Padua, Faculty of Civil Engineering – Padua, Italy

- Civil Engineering background, with a specific focus on Structural Mechanics, Computational Mechanics and special problems of advanced technology
- Note: Thesis awarded with a scholarship from the Aluminia Company

01/10/1973 – 20/07/1978   Scientific Lyceum (High School) Degree - max score 60/60   Leve 4 EQF

Liceo Scientifico Statale, Montebelluna - TV, Italy

- High school in humanities and science

Continuous Education & Training - Courses ATTENDANCE

Within the Education and Training period several courses have been attended

1995	Costruire con l'acciaio, Padova
1995	Costruire con materiali innovativi, Padova
1994	Diagnosi del degrado e restauro strutturale per la conservazione del patrimonio edilizio e monumentale, Vicenza
1994	L'ingegneria sismica: dalla pianificazione del territorio al progetto dei dettagli costruttivi, Vicenza
1994	Costruire con il legno, Padova
1993	EuroSoftware '93, Venezia
1993	Metodologie di verifica agli stati limite di strutture di c.a. e c.a.p., Belluno, Vicenza
1993	La muratura portante di nuova costruzione ed esistente - aspetti normativi e problemi aperti, Venezia
1993	Sperimentazione fisica e modellazione numerica delle strutture, Rovigo, Vicenza
1993	Problemi di durabilità del calcestruzzo - calcestruzzi armati con fibre - barre speciali d'armatura per c.a., Rovigo, Vicenza
1993	Progettare il cemento armato in zona sismica secondo l'eurocodice N. 8, Treviso
1993	Modellazione strutturale e controllo dei risultati, Padova
1992	CAD & FEM - Tecniche di modellazione e di analisi strutturale, Padova
1991	L'impiego di conoscenze sismiche aggiornate nell'analisi e nel progetto: 1) i suoli; 2) le costruzioni civili, Padova
1990	Progress in Computational analysis of inelastic structures, P. Perzyna, A. Samuelsson, J.C. Simo, E. Stein, P. Wriggers, CISM, Udine
1989	Recent advances in nonlinear finite element analysis, T.J.R. Hughes and T.B. Belytschko, Lausanne
1989	Fracture mechanics of concrete with ramifications to rock and ceramics, Z.P. Bazant, Lausanne
1988	Modelli sulla formatura dei metalli: teoria e applicazioni O.C. Zienkiewicz, Torino
1984	XXVI Corso Internazionale di Storia dell'Architettura del Palladio, Chastel, Vicenza

TEACHING & TRAINING

Teaching Activity   **Short resume**

- The educational activities as visiting lecturer at the Institute of Constructions, Bridges and Roads of the University of Padua began in the Academic Year 1986-87, few months after the graduation. From that date the teaching activity has been wide and intense, as shown here below.
- A special effort has been devoted to complementary educational activities, with the organization of extended theory tutorings, additional exercises. Even specific tutoring courses have been organized, to help students who had particular problem in passing the exams.
- As a side teaching activity, for several years, the coordination, management, educational and scientific support of the computational facilities for Civil Engineering in Padua has been provided.
- The implementation of educational programs on personal computer and its educational support for students, as well as the development of special programs devoted at graphical restitution for master students has also to be cited.
- Also, the students' judgment concerning the quality of teaching has always been very positive, despite the fact that the courses are among the most difficult ones for both

civil and industrial engineering students. More details are available in the annexed Students' teaching evaluation list.

See also Annex 2.

Students' evaluation summary in the last 5 years

Structural Mechanics vs Faculty average (*)					
Topic	**2014-15**	**2013-14**	**2012-13**	**2011-12**	**2010-11**
Capability to stimulate/motivate the interest in the subject	90-(80)	91-(79)	89-(75)	88-(72)	90-(70)
Capability to explain the arguments in a clear way	79-(81)	80-(81)	81-(77)	86-(75)	85-(73)
Computational Mechanics vs Faculty average (*)					
Topic	**2014-15**	**2013-14**	**2012-13**	**2011-12**	**2010-11**
Capability to stimulate/motivate the interest in the subject	91-(80)	-	92-(75)	81-(72)	80-(70)
Capability to explain the arguments in a clear way	88-(81)	-	86-(77)	75-(75)	76-(73)

Extracurricular & Tutoring Courses

2012-05	Tutoring course of Structural Mechanics	(55 students – Unisalento)
2007-06	Highlights on the Finite Element Method	(40 students – Unisalento)
2007-06	Tutoring course of Structural Mechanics	(60 students – Unisalento)
2005-12	Tutoring course of Structural Mechanics	(20 students – The Turin Polytechnic)
2003-12	Tutoring course of Structural Mechanics	(20 students – The Turin Polytechnic)

Special initiatives

2013-2014-2015 SpaghettiBridge contest

The competition consists in building a 1-m bridge using plain pasta (usually spaghetti or bucatini) – spaghettibridge.unisalento.it; https://www.facebook.com/Unisalento.SBC/?fref=ts; https://www.youtube.com/user/UniSalento/playlists.

Courses

November 2006 – today (Full Professor)

University of Salento (former University of Lecce)

2016/2017

- Structural Mechanics   (industrial)
- Computational Mechanics   (master civil)
- Structural Mechanics   (Brindisi, industrial (substitute))

2015/2016

- Structural Mechanics   (industrial)
- Structural Mechanics - A   (civil)
- Structural Mechanics   (Brindisi, industrial (substitute))

2014/2015

- Structural Mechanics   (industrial)
- Computational Mechanics   (master civil)
- Structural Mechanics   (Brindisi, industrial (substitute))

2013/2014

- Structural Mechanics   (industrial)
- Computational Mechanics – A   (master civil)
- Structural Mechanics   (Brindisi, industrial (substitute))

2012/2013

- Structural Mechanics   (industrial)
- Computational Mechanics – A   (master civil)

- Structural Mechanics   (Brindisi, industrial (substitute))

2011/2012
- Structural Mechanics   (industrial)
- Computational Mechanics – A   (master civil, materials)

2010/2011
- Structural Mechanics   (civil)
- Computational Mechanics – A   (master civil, materials)
- Computational Mechanics – B   (master civil, (substitute))
- Structural Mechanics   (Brindisi, industrial (substitute))

2009/2010
- Computational Mechanics – A   (master civil, materials)
- Computational Mechanics – B   (master civil)

2008/2009
- Structural Mechanics   (civil, mechanical, materials)
- Structural mechanics II   (master civil, material (substitute))
- Computational Mechanics – A   (master civil, materials)
- Computational Mechanics – B   (master civil (substitute))

2007/2008
- Structural Mechanics   (civil, mechanical, materials)
- Structural Mechanics   (Brindisi, management (substitute))
- Theory of Structures   (Brindisi, Master aerospace (10 hours))

2006/2007
- Structural Mechanics   (civil, mechanical, materials)
- Structural Mechanics   (Brindisi, management (substitute))
- Theory of Structures   (Brindisi, Master aerospace (10 hours))

November 1998 – October 2006 (Associate Professor)
University of Padua, Faculty of Engineering
2001/2002
Computational Mechanics for Structures   (civil (substitute))
The Turin Polytechnic, Faculty of Engineering II
2005/2006
- Structural Mechanics   (civil)
- Continuum Mechanics   (mechanical (substitute))
- Computational Mechanics of Structures I (civil, (collaboration - seminars and exercises))
- Computational Mechanics of Structures II (civil, (collaboration))

2004/2005
- Structural Mechanics   (civil)
- Continuum Mechanics   (mechanical, (collaboration - exercises))

2003/2004
- Structural Mechanics   (civil)
- Continuum Mechanics   (mechanical (substitute))
- Computational Mechanics of Structures   (civil, (collaboration- seminars and exercises))

2002/2003
- Structural Mechanics   (civil)
- Continuum Mechanics   (mechanical (substitute))

2001/2002
- Structural Mechanics   (civil)
- Continuum Mechanics   (mechanical (substitute))
- Computational Mechanics of Structures   (civil, (collaboration - seminars and exercises))

2000/2001
- Structural Mechanics   (civil/ mechanical)
- Computational Mechanics of Structures   (civil, (collaboration - seminars and exercises))

1999/2000
- Structural Mechanics   (civil/ mechanical)
- Reinforced Concrete Design   (civil (substitute))
- Computational Mechanics of Structures   (civil, (collaboration - seminars and exercises))

1998/1999

- Structural Mechanics   (civil/mechanical)

December 1993 – October 1998 (Assistant Professor)
Teaching experience within the courses of Structural mechanics for Civil engineering and Management engineering, Mechanics of Materials and Fracture, Theory of Structures. The teaching activity included exercises, seminars on special topics, and tutoring of homeworks and Master Theses. A noticeable support was also provided to the students for the use of software, by assisting them during scheduled exercise sessions, and by the management of the available computational facilities.

October 1986 – November 1993 (Scientific co-worker, PhD Student, Post-doc)
Teaching experience within the courses of Structural Mechanics, Reinforced Concrete, Computational Mechanics for Structures, and Structural dynamics. The teaching activity included exercises, seminars, and tutoring of homeworks and Master Theses. A noticeable support was also provided to the students for the use of software, by assisting them during scheduled exercise sessions.

Training activity
Courses ORGANIZATION and
PARTICIPATION as speaker

Participation as speaker
1990-present
Several invited seminars at Italian and foreign Universities:
University of Hannover, University of Darmstadt, University of Stuttgart, University of Padua, University of Bologna, University of Berkeley, University of Stanford, The Turin Polytechnic, The Milan Polytechnic.

2016
TCN - 3-days course on "An introduction to the Finite Element Method" FIAT Res. Center, Orbassano, March 8-10, 2016.

2015
Recupero e restauro del patrimonio storico costruito: progettazione consapevole e coerenza degli interventi - Laboratorio TekneHub, Tecnopolo dell'Università degli Studi di Ferrara, Rete Alta Tecnologia dell'Emilia Romagna, Ferrara, 8 Maggio 2015.

2014
Workshop Italia – Il risanamento delle murature umide, Padova, 23 Settembre 2014.

2013
Workshop Italia – Il risanamento delle murature umide, Lecce, 17 Aprile 2013.

2012
TCN - 2-days course on "Numerical methods for contact problem: an overview of the current state of art" (together with prof. P. Wriggers) Bergamo, February 6-7, 2012.

2010
Il Sistema voltato delle fabbriche salentine, In cooperation with "Direzione Regionale per I Beni Culturali e Paesaggistici della Puglia, Soprintendenza per i Beni Architettonici e Paesaggistici per le Province di Bari, Barletta-Andria-Trani e Foggia. Serie "Incontri Culturali del Giovedì al Castello Svevo di Bari, 13 Maggio 2010.

2010
TCN - 2-days course on "An introduction to the Finite Element Method" Bergamo, May 10-11, 2010.

2010
TCN - 2-days course on "Numerical methods for contact problem: an overview of the current state of art" (together with prof. P. Wriggers) Bergamo, June 3-4, 2010.

2008
TCN - 2-days course on "Numerical methods for contact problem: an overview of the current state of art" (together with prof. P. Wriggers) Bergamo, April 17-18, 2008.

2007
TCN - 2-days course on "Numerical methods for contact problem: an overview of the current state of art" (together with prof. P. Wriggers) Bergamo, May 14-15, 2007.

2006
TCN - 2-days course on "Numerical methods for contact problem: an overview of the current state of art" (together with prof. P. Wriggers) FIAT Res. Center, Orbassano, February 20-21, 2006.

2005
Course on "Contact mechanics applied to industrial problems", Universidad Internacional de Andalucìa, Baeza, Spagna, April 2005.

2005
TCN - 2-days course on "Introduction to numerical methods for contact problems with friction and thermo-mechanical coupling" (together with prof. P. Wriggers) FIAT Res. Center, Orbassano, Italy, July 11-12, 2005.

2004
TCN - 2-days course on "Introduction to numerical methods for contact problems with friction and thermo-mechanical coupling" (together with prof. P. Wriggers), Bergamo, Italy, May 10-11, 2004.

2003
TCN - 2-days course on "Introduction to numerical methods for contact problems with friction and thermo-mechanical coupling" (together with prof. P. Wriggers) FIAT Res. Center, Orbassano, Italy, February 24-25, 2003.

2002
NAFEMS - 2-days course on "Introduction to numerical methods for contact problems with friction and thermo-mechanical coupling" (together with prof. P. Wriggers), FIAT Res. Center, Orbassano, Italy, February 10-11, 2002.

2000
NAFEMS - 2-days course on "Introduction to numerical methods for contact problems with friction and thermo-mechanical coupling" (together with prof. P. Wriggers and prof. F. Bonollo), Padua, Italy October 11-12, 2000.

1988
Lessons for the Professional Board of Engineers of Treviso on: "The finite element method in structural design".

Organization
1991-1995 COMETT-ATTAC Courses
Within the European Project COMETT-ATTAC several Continuous Education and Training Courses, in cooperation with the Professional Engineering Boards of the Nord-East of Italy, have been organized. The total amount of activity concerns 15 courses, for a total of 30 working days:

1995 Costruire con materiali innovativi, Padova
1995 Costruire con l'acciaio, Padova
1994 Costruire con il legno, Padova
1994 L'ingegneria sismica: dalla pianificazione del territorio al progetto dei dettagli costruttivi, Vicenza
1994 Diagnosi del degrado e restauro strutturale per la conservazione del patrimonio edilizio e monumentale, Vicenza
1994 Diagnosi del degrado e restauro strutturale per la conservazione del patrimonio edilizio e monumentale, Vicenza
1993 Progettare il cemento armato in zona sismica secondo l'eurocodice N. 8, Treviso
1993 Problemi di durabilità del calcestruzzo - calcestruzzi armati con fibre - barre speciali d'armatura per c.a., Rovigo, Vicenza
1993 Sperimentazione fisica e modellazione numerica delle strutture, Rovigo, Vicenza
1993 La muratura portante di nuova costruzione ed esistente - aspetti normativi e problemi aperti, Venezia
1993 Metodologie di verifica agli stati limite di strutture di c.a. e c.a.p., Belluno, Vicenza
1993 EuroSoftware '93, Venezia
1993 Modellazione strutturale e controllo dei risultati, Padova
1992 CAD & FEM - Tecniche di modellazione e di analisi strutturale, Padova
1991 L'impiego di conoscenze sismiche aggiornate nell'analisi e nel progetto: 1) i suoli; 2) le costruzioni civili, Padova

| SCIENTIFIC RESEARCH | |

Publications

Publications have focused on issues of Computational Mechanics. The complete publication list is available as separate document

Total to date

International publications:	160
National publications	44
Total	204

Detailed publication list

International

International journals	56
International journals accepted	0
Monographs	4
Book chapters	4
Contributions on refereed books	8
Prefaces	1
Papers on conference proceedings	33
Extended abstracts and poster sessions in International Conferences	39
Reports	15

National

Publications on international journals	5
Monographs;	3
Papers on conference proceedings	26
Extended abstracts and poster sessions in International conferences	6
Internal reports	4

Scientific rankings

SCOPUS
- H-index: 22
- H-index without self-citations: 21
- Documents: 56
- Citations: 1163, by 764 documents

See also Annex 3.

Google Scholar
- H-index: 27
- Citations: 3940
- I10-index: 42

See also Annex 3.

ResearchGate
- RG Score: 30.37
- Score higher than 87.5 of ResearchGate members'
- H-index: 24
- H-index without self-citations: 23
- Citations: 1751

See also Annex 3.

Mendeley
- H-index: 22
- Publications: 57
- Citations: 1180
- Views: 26043
- Readers: 712

See also Annex 3.

Publons
- **Rankings**
  - 98th percentile of reviewers from University of Salento until October 2016.

- o   98th percentile of reviewers in Engineering (all) on Publons up until October 2016.
- **Ranking**
  - o   1st reviewer of University of Salento, with merit 428.
  - o   1st reviewer of world ranking in Engineering – Computational Mechanics
  - o   73rd reviewer of world ranking in Engineering
- **University of Salento ranking**
  - o   18 Reviewers - 29th in Italy (Highest merit G. Zavarise)
  - o   348 reviews – 19th in Italy (142 from G. Zavarise)
  - o   1048 Merit – 19th in Italy (428 from G. Zavarise)
- **Peer Review Summary**
  - o   Reviewed 142 manuscripts for journals including Computational Mechanics and Computer Methods in Applied Mechanics and Engineering; placing in the 98th percentile for verified review contributions on Publons up until September 2016:
- **Peer Review list**
  - o   37 Computational Mechanics
  - o   21 Computer Methods in Applied Mechanics and Engineering
  - o   18 International Journal for Numerical Methods in Engineering
  - o   12 International Journal of Solids and Structures
  - o   12 Tribology International
  - o   8 Journal of Tribology
  - o   4 Computers & Structures
  - o   4 Wear
  - o   4 Mechanics Research Communications
  - o   4 Archive of Applied Mechanics
  - o   3 International Journal of Mechanical Sciences
  - o   2 European Journal of Mechanics, A/Solids
  - o   2 Journal of Mathematical Analysis and Applications
  - o   2 Meccanica
  - o   2 Journal of Applied Mechanics, Transactions ASME
  - o   2 Nanomaterials and Nanotechnology
  - o   2 Journal of Engineering Mathematics
  - o   1 Journal of Computational Physics
  - o   1 Mechanics of Advanced Materials and Structures
  - o   1 Engineering Computations
  - o   1 Steel & Composite structures

See also Annex 3.

H-index without self-citations, - full professors of the Department of Innovation Engineering, University of Salento
- Professors: 19
- 1st: prof. A. Maffezzoli – Materials' Science, H-index 26
- 2nd: prof Giorgio Zavarise – Structural Mechanics, H-index 21
- Mean value: 13.84

See also Annex 3.

H-index without self-citations, full professors in Structural Mechanics, Italy
- Professors: 85
- 1st: prof. F. Auricchio, H-index 38
- 12th: prof Giorgio Zavarise – Structural Mechanics, H-index 21
- Mean value: 13.76

See also Annex 3.

VQR 2004-2010 (National evaluation of the quality of the research)
Excellent evaluation (max rank) of the submitted papers. The Civil Engineering scientific area resulted the only one with excellent evaluation of the whole University of Salento.
Selected also as referee for evaluation of scientific contributions in the field of Structural Mechanics.
See also Annex 3.

ASN 2012 (National Scientific Habilitation)
Eligible member of the Evaluation Commission for associate and full professorship positions.
See also Annex 3.

Others

- Journal "Wear" - Top 25 articles, July-September 2004: G. Zavarise, M. Borri-Brunetto, M. Paggi.On the reliability of microscopical contact models, *Wear, Volume 257, Issue 3-4, 1 August 2004, Pages 229-245.*
- Several scientific books contain citations to Giorgio Zavarise's papers.

See also Annex 3.

Honours and awards	Publons Top reviewers for Sentinels of Science: Engineering (all) (Oct. 2015 - Sept. 2016).
	See also Annex 3.

Editorial Boards Memberships	Computational Mechanics – Springer - (from May 2011), http://www.springer.com/engineering/mechanics/journal/466?detailsPage=editorialBoard.
	Structural and Computational Mechanics Book Series, Società Editrice Esculapio, Bologna (from July, 2015), http://www.editrice-esculapio.com/structural-and-computational-mechanics-book-series/; ISSN: 2421-2822, DOI: 10.15651/structural-and-computational-mechanics-book-series.

Reviewer' activity for Scientific Journal

Reviewer's activity for top-class scientific journals in the field of Mechanics and Computational mechanics is quite wide.

Review performed in the last 5 years

2016:   21
2015:   25
2014:   11
2013:   18
2012:   10

Scientific Journals

1) Archive of Applied Mechanics
2) ASME Journal of Applied Mechanics
3) ASME Journal of Tribology
4) Computational Mechanics
5) Computer Methods in Applied Mechanics and Engineering
6) Communications in Numerical Methods in Engineering
7) Computers & Structures
8) Engineering Computation
9) European Journal of Mechanics A/Solids
10) Engineering Computations: International Journal for Computer-Aided Engineering and Software
11) International Journal of Mechanical Sciences
12) International Journal of Solids and Structures
13) International Journal for Numerical Methods in Engineering
14) Journal of Computational Physics
15) Journal of Engineering Mathematics
16) Journal of Mathematical Analysis and Applications
17) Meccanica
18) Mechanics of Advanced Materials and Structures
19) Mechanics Research Communications
20) Nanomaterials and Nanotechnology
21) Steel and Composite Structures, An International Journal
22) Tribology International
23) Wear

Reviewer' activity for National and International Institutions

National Institution (research proposals and scientific performances evaluation)

1) Miur - Ministry of Education, University and Research (Register of Expert Peer Reviewers for Italian Scientific Evaluation)
2) ANVUR - National Agency for the Evaluation of the University and Research System
3) Puglia Region - Italy
4) University of Padua - Italy

International Institutions (research proposals and scientific performances evaluation)
1) Deutsche Forschungsgemeinschaft (German Research Foundation)
2) Swiss National Science Foundation
3) Fonds National de la Recherche Luxembourg
4) Austrian Science Fund (FWF)
5) Shota Rustaveli National Science Foundation (SRNSF) – Georgia

PhD Evaluation Committees
Universidad Pontificia Comillas, Madrid, Spain.
University of Hannover, Germany.
University of Salento, Lecce, Italy.
The Turin Polytechnic, Turin, Italy.

Research periods abroad

The whole scientific activity is characterized by a strong link with top-class Universities

2006-present
short visits at the University of Hannover, Germany. As full professor, collaboration with Prof. P. Wriggers.

1998-2005
One month per year, University of Hannover, Germany. As associate professor, collaboration with Prof. P. Wriggers.

01/1996-06/1996
Stage at the University of Berkeley, California – USA. As assistant professor, collaboration with Prof. R.L. Taylor.

1994-1996
One month per year, University of Darmstadt, Germany. As assistant professor, collaboration with Prof. P. Wriggers.

1991-1993
One month per year, University of Darmstadt, Germany. As Post-doc student, collaboration with Prof. P. Wriggers.

04/1990-05/1990
University of Darmstadt, Germany. As PhD student, under the guidance of Prof. P. Wriggers.

01/1990-03/1990
University of Hannover, Germany. As PhD student, under the guidance of Prof. E. Stein and Prof. P. Wriggers.

10/1989-12/1989
University of Hannover, Germany. As PhD student, under the guidance of Prof. E. Stein and Prof. P. Wriggers.

Organization of International and National Conferences

As Chairman
2018 – CMIS2018 – 9th Contact Mechanics International Symposium, Biella, Italy, May 2018.
2017 – ICCCM2017 – 5th International Conference on Computational Contact Mechanics, Lecce, July 2017.
2015 – ICCCM2015 – 4rd International Conference on Computational Contact Mechanics, Hannover, May 2015.
2015 – GAMM2015 – 86th Annual Meeting of the International Association of Applied Mathematics and Mechanics, Lecce, Italy, March 2015 (850 participants).
2013 – ICCCM2013 – 3rd International Conference on Computational Contact Mechanics, Lecce, July 2013.
2011 – TCCM 2011 – Trends & Challenges in Computational Mechanics, Padua, Italy September 2011.
2011 – ICCCM11 – 2nd International Conference on Computational Contact Mechanics, Hannover, June 2011.
2009 – ICCCM2009 – 1st International Conference on Computational Contact Mechanics, Lecce, September 2009.

As member of the Local Organizing Committee
- 2008 – TCN–CAE 2008 – International Conference on CAE and Computational Technologies for Industry, Venice, October 2008.
- 2008 – WCCM8 – 8th World Congress on Computational Mechanics, Venice, Italy, June 2008.
- 2007 – FRAMCOS–6 – 6th International Conference on Fracture Mechanics of Concrete and Concrete Structures, Catania, Italy, June 2007.
- 2005 – ICF11 – 11th International Conference on Fracture, Turin, Italy, March 2005.
- 2003 – GAMM2003 – 74th Annual Meeting of the International Association of Applied Mathematics and Mechanics, Abano Terme, Italy, March 2003, (Scientific secretary, 750 participants).

1988 – Computer Modelling in Ocean Engineering, Venice, Italy, September 1988.

As member of the Scientific Committee
- 2016 – WCCM XII 12th World Congress on Computational Mechanics & APCOM VI – 6th Asia-Pacific Congress on Computational Mechanics, Seoul, Korea, July 24-29, 2016.
- 2016 – GIMC–GMA 21th National Congress of Computational Mechanics, Lucca, Italy, June 2016.
- 2016 – CMIS 2016 – 8th Contact Mechanics International Symposium, Warsaw, Poland, May 2016.
- 2015 – EUROMECH Colloquium 575 – Contact Mechanics and Coupled Problems in Surface Phenomena, Lucca, Italy, April 2015.
- 2014 – GIMC–GMA 20th National Congress of Computational Mechanics, Cassino, Italy, June 2014.
- 2012 – Euromech Colloquium 514 – New Trends in Contact Mechanics, Cargese, Corsica, France, March 2012 (member of the Advisory Board).
- 2010 – ECCM2010 – 4th European Conference on Computational Mechanics, Paris, France, May 2010 (member of the International Advisory Board).
- 2009 – CMIS2009 – 5th Contact Mechanics International Symposium, Chania, Greece, April 2009.
- 2005 – CMIS2005 – 4th Contact Mechanics International Symposium, Hannover, Germany, July 2005.

Memberships

PhD Faculty Committees
2013-present
PhD Faculty Committee, PhD program in "Engineering of Complex Systems" – Faculty of Engineering, University of Salento.

2009 – Present
Member of the "MEG – Electron Gamma" Research Group, INFN - National Institute for Nuclear Physics – Section of Lecce.

2009-2010
PhD Faculty Committee, PhD program in "Mechanical and Industrial Engineering" – Faculty of Engineering, University of Salento.

1998-2006
PhD Faculty Committee, PhD program in "Structural Engineering" – Faculty of Engineering, The Turin Polytechnic.

Scientific Associations
1990-present
Member of AIMETA – Italian Association of Theoretical and Applied Mechanics.
Member of GIMC – Italian Group of Computational Mechanics.

10/2013-6/2016
Chairman of GIMC - Italian Group of Computational Mechanics.
Member of the Presidents of Affiliated Associations List of IACM – International Association of Computational Mechanics.

10/2013- Present
Member of the General Council of IACM – International Association of Computational Mechanics.

Member of ECCOMAS – European Community on Computational Methods in Applied Sciences, as representative of GIMC.

1998-2006
Member of IGF – Italian Group of Fracture.

Others
2015-present
International Scientific Committee for the Conservation of the Marble Floor of the St John's. Co-Cathedral, Malta (with R. Bondin, C. Degiorgio, S. Bonsanti, S. Cather, F. Piqué).

2009-2014
Advanced Computing Group – Center of Excellence "Scienza ed applicazioni di paradigmi computazionali avanzati", Department of Information Engineering, University of Padua, Italy.

Research projects coordination, management and participation

2013-present
Collaboration for development of subatomic particles detectors - Experiment "Mu2e for Direct Muons to Electron Conversion at Fermilab"; Experiment SuperB at Cabibbo Lab.", INFN - National Institute for Nuclear Physics – Section of Lecce.

2012-2017
Scientific collaboration for the European Project ERC-2011-StG – Proposal n. 279439 INTERFACES, (Ing. Laura De Lorenzis).

2012-2016
Proposal development and scientific collaboration for University of Salento Unit of the the National Project FIRB-RBFR107AKG "Modelli di meccanica strutturale per applicazioni in ambito di energie rinnovabili" (structural mechanics models for applications in the field of renewable energies) National coordinator Ing. Marco Paggi, Politecnico di Torino.

2011-2013
Consultant for the Research Project ENEL (National energy generation and distribution company) "Sviluppo di filiere corte per la valorizzazione dei residui termoelettrici nel settore delle costruzioni" (Development of fast industrial strategies for the exploitation of thermoelectric residues (ash) in the construction sector), Coordinator prof. A, De Risi.

2010-2012
Coordinator of the University of Salento Unit for the National project "PRIN 2008 - Advanced applications of Fracture Mechanics for the study of integrity and durability of materials and structures". See also Annex 4.

2009-present
Collaboration for development of subatomic particles detectors - Experiment "MEG – Muon Electron Gamma", INFN - National Institute for Nuclear Physics – Section of Lecce.

2009-2011
Consultant for the industrial res. project STAR2 (Simulation Technology Aeronautic Research 2) – Res. Program POR Puglia Region, Italy 2007/2013 – Asse I

2007-2008
Consultant for the industrial res. project STAR (Simulation Technology Aeronautic Research) – Res. Program POR Puglia Region, Italy 2000/2006 – PIT n. 7.

2008
Italy-Germany DAAD / CRUI Vigoni Programme, Project on "Multi-scale modelling of advanced heterogeneous materials".

2006-2009
Proposal development and coordination; Consultant activity for management and research for the "Leonardo da Vinci Program" - European Project I/06/B/F/PP-154069 "ILTOF - Innovative Learning

and Training On Fracture".

2003 - 2006
National coordinator of the Italian Unit for the "Leonardo da Vinci Program" - European Project E/03/B/F/PP-149.038 "NUFRIC - Numerical Medium-Level Training on Industrial Friction Problems".

2005-2007
Coordinator of the Turin Polytechnic Unit for the national project "PRIN 2005 - Meccanica del contatto e meccanica della frattura: sinergie, interazioni e applicazioni" (Contact mechanics and fracture mechanics: synergies, interactions, applications).
See also Annex 4.

2003-2005
Coordinator of the Turin Polytechnic Unit for the national project "PRIN 2003 - Aspetti fisici e computazionali nella meccanica del contatto fra solidi" (Physical and computational aspects of the mechanical contact between solids).
See also Annex 4.

2003
Italy-Germany DAAD / CRUI Vigoni Programme, Project on "Numerical simulation of electromechanical contact processes with the Finite Element Method".

2002
Italy-Germany DAAD / CRUI Vigoni Programme, Project on "Numerical simulation of electromechanical contact processes with the Finite Element Method".

2001
Italy-Germany DAAD / CRUI Vigoni Programme, Project on "Numerical simulation of electromechanical contact processes with the Finite Element Method".

2001 – 2002
National coordinator and coordinator of the Turin Polytechnic Unit for the national project "PRIN 2000 - La meccanica del contatto: legami costitutivi dei fenomeni di interfaccia e tecniche di discretizzazione" (Contact mechanics: constitutive laws for interfacial phenomena and discretization techniques).
See also Annex 4.

2000 – 2002
Coordination, management and research for European Project GROWTH GRD1-10330, G1RD-CT2000-00161-"CUTTER" – Enhanced design and production of wear resistant rock cutting tools for construction machinery (coordinated by prof. B. Schrefler – University of Padua).

2000 - 2002
Coordination, management and research for the thermonuclear fusion – sector on superconducting cables, Proj. EFDA – Mechanical modelling of ITER superconducting cable (coordinated by prof. B. Schrefler – University of Padua).

1993 – 2000
Scientific and management collaboration and participation to several research projects coordinated by prof. B. Schrefler – University of Padua:
- PRIN - National Res. Projects;
- Columbus Telescope Project - International projects for the design new large telescopes;
- ITER Research Project – Design of superconducting coils for the nuclear fusion ITER reactor.
- Italy-Germany DAAD / CRUI Vigoni Programme 1999.

Research main topics
The scientific work is carried out in a context of international-type collaborations.
These collaborations began in 1989 with a stay at the University of Hannover, to work under the guidance of Prof. E. Stein, who is an outstanding scientist in the field of computational mechanics. The joint activity subsequently involved also Prof. P. Wriggers, of the University of Darmstadt. Since 1989 regular research stays have been made at both these Universities.

In 1996 a collaboration started with Prof. R.L. Taylor, of the University of Berkeley, California - USA, with a 6-months internship at Berkeley.
The main topics of the research belong to several research fields of Mechanics of Solids and Structures. The unifying aspect of the scientific production is the focus on numerical modeling, although there have been connections to physical experimentation, both for building and calibrating the numerical models, and for their critical evaluation in engineering applications.
The following main topics have been addressed:

- Contact mechanics
- Structural problems in advanced technology fields
    - Sub-atomic particles detectors
    - Technology of controlled thermonuclear fusion
    - Technologies for instruments of new conception in astronomic optics
    - Effect of mechanical stresses on optical fibers
- Masonry structures
- Massive concrete castings and structures under fire
- Numerical discretization and error control
- Mechanics of geostructures
- Structural restoration of concrete structures

Contact mechanics
This research theme, which is the main one, has been studied first for the PhD Thesis.
Starting from the analysis and mathematical representation of the contact surface roughness, both mechanical actions and heat flows are analyzed first on microscopic scale. This approach permitted to build macroscopic laws for mechanical and thermal exchange, with a close analogy with the constitutive laws of the continuum. Both the physical and computational aspects are considered within a robust and rigorous framework.
The FE discretization technique of these contact laws was performed paying attention to the computational efficiency. For this purpose, both consistent linearization of the equation set, and non-consistent but rapidly converging algorithms have been suitably developed. This approach follows the mainstream developed at the Universities of Hannover (E. Stein, P. Wriggers) and Stanford (J. Simo), and requires a multi-disciplinary field knowledge, about mechanics, tribology, and computational mechanics of coupled problems. More in detail, the thermo-mechanical contact problem is a natural extension and complement of the usual mechanical contact one. It currently finds interesting applications in the aeronautical and space industries, nuclear power, forming and micro-electronics. Moreover, the research has been also extended to the field of electro-mechanical contact problems.
The research activity in recent years has led to new techniques for solving contact problems and a new definition of the geometric parameters for the discretization of the surfaces. Scientific contributions have been given also with augmentation techniques, constitutive models (friction, delamination, comparison between micro-mechanical models), special techniques for rapid convergence, isogeometric approaches for an accurate modeling of the contact surfaces.
A remarkable contribution has been given also in the field of contact between beams, with two papers that are nowadays a sort of starting and reference point for this research field. A contribution has been given also on the field of interactions between fracture mechanics and contact mechanics, with exploration of possible synergies, applications to the delamination problems, and the assessment of the accuracy of micromechanical contact models.
This research experience, recognized at international level, has led to the invitation to the drafting of a chapter of the prestigious "Encyclopedia of Computational Mechanics", in collaboration with prof. P. Wriggers.

Structural problems in advanced technology fields
All these researches have been carried out within a framework of international partnership.
Sub-atomic particles detectors
The collaboration with "INFN - National Institute for Nuclear Physics – Section of Lecce" for the structural design of subatomic particles detectors started in 2011. The research activity has been devoted to structural problems of the detectors of: experiment Mu2e – a detector for "Direct Muons to Electron Conversion", to be installed at Fermilab, Batavia, USA; experiment SuperB – a detector for" high-luminosity electron-positron collider"; to be installed at the Cabibbo Lab, Rome, Italy; experiment MEG – a new detector for "Muon to Electron plus Gamma experiment", to be installed at the Paul Sherre Institute, Zurich, Switzerland.
Technologies for thermonuclear fusion
This activity deals with structural problems of a facility for the preliminary studies on controlled thermonuclear fusion. More in detail, the studies are related to the "RFX – Reversed Field eXperiment" machine, which is a toroidal vacuum chamber. The analyses were devoted to the support rings of the superconducting coils for the magnetic confinement of the plasma. The survey covered the study of unilateral contact between chamber and supporting rings.

The machine has been built in 1991, and is now part of the facilities of the CNR – National Res. Center, in Padua.

More recently a contribution has been given also for the design of the superconducting coils of the ITER project. In this case an electromechanical contact model has been suitably developed to study the mechanical and thermal effects at the contact points of the superconducting filaments.

Technologies for newly developed optical astronomical instruments

This research field concerns the feasibility study of the mechanical structure for a newly designed Large Binocular Telescope. Static and dynamic studies have been performed for the conceptual design of the support structure. The design, based on innovative criteria, satisfies the tight dynamic characteristics required for achieving a very high image quality.

The project of the structure, supporting two mirrors 8.4 meters in diameter, has been performed in collaboration with the Astrophysical Observatory of Arcetri and the Steward Laboratory at the University of Tucson. The LBT telescope, (originally named "Columbus Telescope") is now part of the Mount Graham International Observatory.

Effects of mechanical stresses on the optical fibers

The highly topical issue concerns the influence of mechanical deformation on the efficiency of data transmission in optical fiber ribbons, since mall changes in geometry caused by residual stresses due to the production process can affect the efficiency significantly.

Masonry structures

A contribution has been given also in the field of numerical study of discrete masonry structures under static and dynamic loading. The numerical models have evidenced interesting aspects of the failure mechanisms for walls, columns and arches.

Massive concrete castings and structures under fire

The research deals with the mechanical behavior of massive concrete castings subjected to thermal time-varying fields and concrete structures subjected to fire.

Massive concrete castings

The research deals with a model for the simulation of thermo-mechanical phenomena that take place during concrete hardening. The numerical model takes into account the interaction of environmental factors, such as wind, solar radiation, the degree of cloud cover and the heat removed from the surfaces of the castings, also in the presence of surface curing. The analysis of the mechanical behavior is devoted to avoid crack propagations due to thermal expansion/contraction. The study of thermal transients takes considers the construction phase of a gravity dam. The variations in shape of the structure, as well as the boundary conditions are fully considered. The effects of surface treatments are suitably modeled by identifying the mathematical model and operating the discretization by an appropriate boundary condition, developed and implemented on purpose.

Structures subjected to fire

The non-linear thermomechanical analysis of two- and three-dimensional structures has been extended to steel structures subject to fire, investigating the thermal transient data and the effects of different types of insulating material adopted.

Numerical discretization and error control

The research has been focused on a new technique for the automatic generation of shape functions for the serendipity elements. The method is based on the propagation of non-zero terms in the Pascal's triangle when growing the elements' order. The study provided also a computer code that compute the polynomial coefficients of the shape functions. The proposed method allows a considerable flexibility in the construction of non-standard and non-symmetric elements. This fact has interesting prospects for highly nonlinear problems. Concerning mesh refinement, a contribution was also given, with a method of error estimate and error propagation control.

Mechanics of geo-structures

The research in this field has been focused on the employment of coupled numerical models for investigating the electrical responses of hydrated rock samples. The survey was carried out considering an equally-spaced pore distribution with cubic geometry. The geometry, although simple, has been effective to describe adequately the real geometry of inhomogeneous rock samples taken at great depths.

The research field has been the subject of further contributions within the collaboration to the European project "CUTTER". Just for this purpose a technology for modeling the soil as a set of discrete rigid elements interconnected by suitably modified contact elements has been developed.

Structural restoration of concrete structures

Concerning the concrete structures, the research has been focused on problem related to the structural restoration techniques and problems associated with the use of new types of steel.

The noticeable importance of the structural restoration requires an accurate knowledge of the

phenomena taking place at the damaged surfaces. For this scope, both experimental and numerical tools for determining the resistance limit values have been developed. The possibility offered by newly developed high-ductility steel has been analyzed both with statistical and computational instruments, which highlighted some salient aspects.

Students' tutorship	**Tutor of graduation theses – 2006-2016**

- 29 bachelor theses
- 15 master theses

See also Annex 5

Tutor and co-tutor of PhD and Post-doc students

- 2001-2004, Marco Paggi – PhD, The Turin Polytechnique. Now Associate professor of Structural Mechanics
- 2000-2004, Boso Daniela – Post-doc, University of Padua. Now Associate professor of Structural Mechanics
- 2010-2014, Viviana Palmieri – PhD and Post-doc, University of Salento
- 2006-2014, Laura De Lorenzis Assistant professor. Now full professor in Germany
- 2009-2016, Rossana Dimitri – PhD and Post-doc. Now assistant professor
- 2013-2015, Giuseppe Sciumè – Assistant professor. Now lecturer in France
- 2015-2016, Maria Laura De Bellis – Assistant professor

- **Remarks**: due to the developed scientific knowledge both Marco Paggi and Laura De Lorenzis have been able to get an ERC Starting Grant

PROFESSIONAL EXPERIENCE

Professional habilitations	Habilitated as Professional Engineer in May 1986, with 120/120. Member of the Board of Engineers of the Province of Treviso, 29/07/1986 to 28/10/2002. Member of the Board of Engineers of the Province of Padova since 18/02/2008, N. 5015.

Consulting activity	Consulting activity for private and public companies:

- Arcetri Astrophysical Observatory, Italy & University of Tucson, Arizona – USA: Scientific research consulting on the structural design of the Columbus Telescope, (with P. Salinari C. Maiorana).
- Zollet Ingegneria, Santa Giustina, Italy: National telescope "Galileo" – Coordination of the design of the rotating building (with C. Barbieri, C. Maiorana).
- Hilti Group – Liechtenstein: Scientific research consulting on frictional heating during the nail shooting transient (with P. Wriggers).
- ILVA S.p.A., Taranto, Italy: Consultant on legal disputes.
- University of Salento, Italy: Static testing and administrative testing of new constructions.
- EnginSoft S.p.A., Trento, Italy: Scientific research consulting on wide fields.
- Town of Vercelli, Italy: Static testing of a bridge.
- Iberdrola Generacion, S.A, Spain: Scientific research consulting on hydraulic turbine braking.
- Court Law of Treviso, Italy: Consultant on legal disputes.
- Foundation of the St. John's Co-Cathedral, Malta: Scientific research consulting for the preservation of the marble floor (with R. Bondin, C. Degiorgio, S. Bonsanti, S. Cather, F. Piqué).

Consulting activity for private citizens: Consultant on legal disputes.

PERSONAL SKILLS

Mother tongue(s)	Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Digital competence	SELF-ASSESSMENT				
	Information processing	Communication	Content creation	Safety	Problem solving
	Independen user	Proficient user	Basic user	Independent	Proficient user

- good knowledge of office suite (word processor, spread sheet, presentation software)
- good knowledge of photo editing software gained producing scientific images
- Good knowledge of scientific software (Kaleidagraph, LyX, LateX,)

Driving license   Italian driving license, Class B (motorcycle, cars and small vans)

ADDITIONAL INFORMATION

Personal Abilities and Competences   Excellent teaching ability, ability of coordination and management of research projects, competences in the field of Computational Mechanics, ability to interact with external institutions and industries for studies, research and consulting in applied technologies and technology transfer.

Technical abilities and competences   Fortran programming, use of, of scientific programs (data visualization, scientific text editors, commercial codes for structural analysis).

Social skills and competences   Capacity for coordination and management of research units, for motivation of students, co-workers and colleagues.

Artistic abilities and competences   Writing poems and short stories.

References

Prof. Peter Wriggers
Institute of Continuum Mechanics - Leibnitz University of Hannover, Appelstrasse 11, 30167 Hannover, Germany
Tel: +49 511 762 2220
Email: wriggers@ikm.uni-hannover.de

Prof. R.L. Taylor
Department of Civil and Environmental Engineering – University of California at Berkeley, 714 Davis Hall, Berkeley, CA 94720-1710, USA
Tel: +1 510 642-3066
Email: : rlt@ce.berkeley.edu

Prof. Bernhard Schrefler
Department of Civil, Environmental and Architectural Engineering – University of Padua, Via Marzolo, 9, 35131 Padova.
Tel: +39 049 827 5611
Email: bernhard.schrefler@dicea.unipd.it

Prof. M. Di Paola
Dipartimento di Ingegneria Civile, Ambientale, Aerospaziale, dei Materiali – Università di Palermo, Viale delle Scienze, Ed. 8
90128 PALERMO (PA)
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Email: Mario.dipaola@unipa.it

See also Annex 6

ANNEXES

▪ Annex 1 - Publications list
▪ Annex 2 - Teaching activity
▪ Annex 3 – Scientific rankings
▪ Annex 4 – National research projects
▪ Annex 5 – Students' tutorship
▪ Annex 6 - References

The undersigned, pursuant to Legislative Decree . N. 196/2003, gives his consent to the processing of personal data.

Lecce, 05/10/2016

Prof. Dr.-Ing. Giorgio Zavarise