

### 1. Personal Data

*Name:* Alfio Salvatore  
*Surname:* Grillo  
*Place and Date of Birth:* Catania (Italy), 13th of September 1977  
*Gender:* Male  
*Citizenship:* Italian  
*Family Information:* Married, two children  
*Professional Status:* PEng.: registered professional engineer in Catania (Italy)  
*Language Proficiency:* Italian (native speaker), English and German (very fluent)

### 2. Contact Information

*Current Position:* Ricercatore Universitario (Assistant Professor) of Mathematical Physics at the Politecnico di Torino (Polytechnic of Turin), Italy.

*Address:* Corso Duca degli Abruzzi 24, I-10129 Torino, Italy  
Phone: +39 011 090 7531  
E-mail: [alfio.grillo@polito.it](mailto:alfio.grillo@polito.it)

### 3. Main Research and Scientific Interests

*Continuum Mechanics*

- **Theory of Mixtures:** Thermo-mechanic modelling of multiphasic materials.
- **Theory of Porous Media:** Upscaling and homogenization techniques in porous media with applications to growth mechanics and drug delivery in skin layers.
- **Biomechanics of Soft Tissues:** Multiscale modelling of growth and remodelling of biological tissues.
- **Theory of Finite Elastoplasticity:** Foundations and applications to engineering problems.

*Environmental Science*

- **Thermodiffusion:** Models and simulations of thermodiffusion in porous media.
- **Density-driven flow:** Models and Simulations of thermohaline-driven flow in hydrogeological media.
- **Fractured Media:** Models of flow and transport in fractured porous media.

*Other Scientific Interests*

**Miscellanea:** Biophysics (solitons in molecular system), Differential Geometry, Field Theory, Fractional Calculus.

## 4. Academic Record

### 4.1 Education

- 2003-02 – 2006-02 **PhD Studies in Physical Engineering**
- University: University of Catania, Catania, Italy.
- 1995-10 – 2002-10 **Laurea (BSc + MSc) in Mechanical Engineering**
- University: *Università degli Studi di Catania, Catania, Italy.*
  - Mark: 110/110.
- 1990-09 – 1995-07 **High School**
- School: *Liceo Scientifico Statale „Ettore Majorana“, San Giovanni La Punta (CT), Italy.*
  - Mark: 60/60.

### 4.2 Post-Doctoral Scholarships and Research Contracts

- 2008-10 – 2011-12 Contract Researcher (*Wissenschaftlicher Angestellter*) at the G-CSC (Goethe Center for Scientific Computing) of the Goethe Universität Frankfurt, Germany.
- 2007-09 – 2008-09 „*Wissenschaftlicher Angestellter*“ at the Ruprecht-Karls Universität Heidelberg, Germany.
- Funding: German Ministry of Economy and Technology („*Deutsches Ministerium für Wirtschaft und Technologie*“ - BMWi).
  - Subject: Advancing the groundwater flow software d3f and r3t – Modelling of heat transport and free surfaces („*Weiterentwicklung der Rechenprogramme d3f und r3t – Modellierung des Wärmetransports und freier Oberflächen*“). Contract # 02E10326.
- 2006-07 – 2007-07 One-year post-doctoral scholarship funded by CNISM.
- *Department:* DMFCI, University of Catania.
- 2006-03 – 2006-05 Research contract stipulated with Prof. G. Giaquinta, DMFCI, University of Catania, Catania, Italy.
- *Subject:* Modelling of transport properties of biological tissues.
  - Research carried out at HPL in collaboration with Prof. W. Herzog and Dr. S. Federico.

### 4.3 Pre-Doctoral Contracts

- 2006-01 – 2006-02 Research contract stipulated with Prof. G. Giaquinta, DMFCI, University of Catania, Catania, Italy.
- Subject: *Modelling of transport properties of biological tissues.*

## 5. Relevant Scientific Experiences

### 5.1 Post-Doctoral Experiences

#### Attended Courses

- 2010-02 „*Meccanica Simplettica e Applicazioni*“ („Symplectic Mechanics and Applications“).

- Held by: Prof. F. Cardin.
- Venue: University of „Sacro Cuore“, Brescia, Italy.
- Organizers: Prof. Alfredo Marzocchi and Prof. Alessandro Musesti.

2009-02      „*Problemi matematici nella Fisica dei Cristalli e dei Quasicristalli*“ („Mathematical problems in the Physics of Crystals and Quasicrystals“).

- Held by: Prof. P. Cermelli.
- Venue: University of „Sacro Cuore“, Brescia, Italy.
- Organizers: Prof. Alfredo Marzocchi and Prof. Alessandro Musesti.

2008-02      „*Modelli matematici in Meccanica dei Continui: Costruzione, proposte, aggiornamenti*“ („Mathematical models in Continuum Mechanics: developments, ideas, and new trends“).

- Held by: Prof. P. Podio-Guidugli.
- Venue: University of „Sacro Cuore“, Brescia, Italy.
- Organizers: Prof. Alfredo Marzocchi and Prof. Alessandro Musesti.

### ***Attended Summer Schools***

2006-08      Utrecht University, Utrecht, The Netherlands.

- Subject: *Upscaling and modeling of coupled transport processes in the subsurface.*
- Organizer: C. Berentsen, M. Hassanizadeh, R. Schotting, M. Evertman.

### ***Scientific Events***

2013-09      Member of the organising committee of AIMETA 2013 (National Congress of the Italian Association of Theoretical and Applied Mechanics), Politecnico di Torino, Italy.

Organizer of „*Interdisciplinary Problems in the Physics of Porous Media: Models, Numerics and Experiments from Biomechanics to Hydrogeology*“, a minisymposium in the context of the conference AIMETA 2013.

2012-09      Co-organizer and teacher of the Summer School „*Modelling and Simulation of Biological Systems with the Simulation System UG4*“, held from the 17th to the 28th of September 2012 at the G-CSC, Goethe Center for Scientific Computing of the Goethe Universität Frankfurt, Frankfurt am Main, Germany.

2011-05      Reporter for the *Oberwolfach Reports* for the conference „Fast Solvers for Differential Equations“ („*Schnelle Löser für Differentialgleichungen*“), Oberwolfach, 22nd – 28th of May 2011.

2008-10      Scientific secretary of the international conference „Geometry, Continua

and Microstructure – GCM8“.

- Venue: Catania, Italy.
- Organizer: Prof. G. Giaquinta.

2008-05 Reporter for the *Oberwolfach Reports* on Fast Solvers for Large Systems of Differential Equations. Oberwolfach, 18th – 24th of May 2008.

### **Visiting Post-Doctoral Scholar**

2011-11 Institute of Computational Science of the faculty of Informatics at the Università della Svizzera Italiana (USI), Lugano, Switzerland.

- Supervisor: Prof. R. Krause.
- Subject: *Biphasic Model of biological tissues*.

2010-04 Faculty of Mechanical Engineering of the University of Novi Sad, Serbia.

- Supervisor: Prof. T. Atanackovic.
- Subject: *Fractional Calculus*.

2008-06 Faculty of Mechanical Engineering of the University of Kragujevac, Serbia.  
2007-04

- Supervisor: Prof. M. V. Micunovic.
- Subject: *Transport processes in biological tissues*.

2006-10 – 2006-11 HPL, University of Calgary, Canada.

- Supervisor: Prof. W. Herzog.
- Subject: *Soft tissue biomechanics*.

2006-09 Department of Energy Conversion Science, Kyoto University, Japan.

- Supervisor: Prof. S. Imatani.
- Subject: *Growth and remodelling of biological tissues, and characterisation of the elastic properties of soft tissues*.

2006-03 – 2006-05 HPL, University of Calgary, Canada.

- Supervisor: Prof. W. Herzog.
- Subject: *Soft tissue biomechanics*.

## **5.2 Pre-Doctoral Experiences**

### **Visiting PhD Student**

2005-09 – 2005-10 Department of Energy Conversion Science, Kyoto University, Japan.

- Supervisor: Prof. S. Imatani.
- Subject: *Growth and remodelling of biological materials*.

2005-09 „Dipartimento di Matematica Applicata U. Dini“ (Department of Applied  
2004-11 Mathematics U. Dini), University of Pisa, Italy.

- Supervisor: Prof. C. Trimarco.

2004-05 – 2004-07 Bogoliubov Institute of Theoretical Physics (BITP), Kiev, Ukraine.

- Supervisor: Prof. L. Brizhik and Prof. A. Eremko.
- Subject: *Solitons in Molecular Systems*.

2003-09 – 2003-10 Human Performance Laboratory (HPL), University of Calgary, Canada.

- Supervisors: Prof. W. Herzog and Prof. M. Epstein.
- Subject: *Modelling of Composite Materials, Growth Mechanics*.

## 6. Teaching Activity

### 6.1 Courses held at the Politecnico di Torino, Italy

Academic year

- 2013-2014
- Continuum Mechanics (Exercises)
  - Mathematical Analysis (Exercises)
- 2012-2013
- Mathematical Analysis (Exercises)
  - Theoretical Mechanics (Lectures)
  - Rational Mechanics (Exercises)
- 2011-2012
- Rational Mechanics (Exercises)

### 6.2 Lectures, Tutorials and Seminars held at the Goethe Universität Frankfurt, Germany

Academic year

- 2011-10 – 2012-02 **Lecture and tutorial:**
- 2010-10 – 2011-02 „Spezielle Themen des Wissenschaftlichen Rechnens: Simulation in der
- 2009-10 – 2010-02 *Strömungsmechanik*“ („Special Topics of Scientific Computing: Simulation in Fluid Mechanics“).

#### **Seminar**

„Ausgewählte Themen der Modellierung und Simulation“ (Selected Topics of Modelling and Simulation)

### 6.3 Contract Professorships

- 2008-06 **Visiting (Contract-) Professor:**  
Appointed visiting (contract-) professor of Continuum Mechanics at the Faculty of Mechanical Engineering of the University of Kragujevac, Serbia.
- 2008 – 2009 **Contract Professorships:**
- 2007 – 2008 Faculty of Engineering, University of Catania, Italy.
- General Physics and Elements of Structure of Matter

### 6.4 External Positions

- 2013 – 2013 **Examiner of Dissertation Proposal**  
External Examiner of a Dissertation Proposal of a PhD Student of the „Università della Svizzera Italiana – USI“, Institute of Computational Sciences (ICS), Lugano, Switzerland.

2009 – 2010

***Examiner of Dissertations***

External examiner for dissertations of students of the School of Mathematics and Physical Sciences, North-West University, South Africa (external position).

**6.5 Teaching Assistance**

2004 – 2007

***Teaching Assistant:***

Faculty of Engineering, University of Catania, Italy

- Foundations of Experimental Physics I and II
- Structure of Matter

**7. Supervision of Students**

**7.1 Visiting Students**

2011

Student of Biomedical Engineering, The University of Calgary, Canada.

**7.2 Graduate and PhD Students**

2008 – present

Cooperation with the PhD students of Prof. G. Wittum at the G-CSC, Goethe Universität Frankfurt, Germany.

2007 – 2008

Cooperation with the Graduate and PhD Students of Prof. G. Wittum at the Ruprecht-Karls Universität Heidelberg, Germany.

2007 – present

Cooperation with the PhD students of Prof. G. Giaquinta, University of Catania, Italy.

**7.3 Co-Supervision of Italian Laurea Theses\***

2013

Mathematical Engineering, Polytechnic of Turin, Turin, Italy:

- *A Deeper Insight in Noether's Theorem* (BSc)
- *Computational Thermo-Fluid Dynamics* (MSc)

2010

Mechanical Engineering, University of Catania, Italy.

Thesis: *Thermo-mechanics of Growth in mono- and multiphasic continua* (BSc).

2008

Mechanical Engineering, University of Catania, Italy.

Thesis: *Theoretical study of a molecular motor interacting with a changing temperature environment* (BSc).

2007

Automation and Control Engineering, University of Catania, Italy.

Thesis: *Response of a soft, hydrated tissue to the confined compression test: a Liouville-Steckloff Approach* (MSc).

2006

Mechanical Engineering, University of Catania, Italy.

Thesis: *Interaction between growth and transport phenomena in biological tissues* (MSc).

---

\* Titles are translated from Italian.

- 2005 Mechanical Engineering, University of Catania, Italy.  
Thesis: *Diffusion of a chemical agent in a porous, biphasic, bounded medium in the presence of growth* (MSc).
- 2004 Mechanical Engineering, University of Catania, Italy.  
Thesis: *Restoring of the functionality of a damaged axon membrane – a preliminary study* (MSc).
- 2003 Mechanical Engineering, University of Catania, Italy.  
Thesis: *Analysis of lumbal-sacral spine under random loading* (MSc).

## 8. Fundings

- 2013-04 – present Coordinator of the Research Project „Progetto Giovani: Modelli matematici multi-scale per il trasporto di massa nei sistemi biologici“ („*Multi-scale mathematical models for the transport of mass in biological systems*“), financed by the *Istituto Nazionale di Alta Matematica „Francesco Severi“-Gruppo Nazionale di Fisica Matematica GNFM* (*National Institute for Higher Mathematics „Francesco Severi“ - National Group of Mathematical Physics GNFM*).
- 2007-09 – 2011-12 Post-doctoral position financed by the BMWi.
- 2006-07 – 2007-07 One-year post-doctoral scholarship awarded by CNISM.
- 2002-10 – 2005-10 Three-year research doctorate scholarship awarded by MIUR and the European Union.

## 9. Honours

### 9.1 Invited Lectures at Conferences and Workshops

- 2013-06 Invitation to „*Fast Solvers for Differential Equations*“ („*Schnelle Löser für Differentialgleichungen*“), an international conference to be held from the 11th to the 17th of May 2014 at the *Mathematisches Forschungsinstitut Oberwolfach* (MFO), Germany.
- 2012-06 Invited lecture at „*Contemporary Problems of Mathematics, Mechanics and Informatics – CPMMI 2012*“, and international conference held from 17th to the 19th of June 2012 at the University of Novi Pazar, Novi Pazar, Serbia.
- 2011-10 Plenary lecture „*Modelling Storage in Deep Layers – MSDL2011*“, an international conference held from the 12th to the 16th of October 2011, at the Schwetzingen Castle, Schwetzingen, Germany.
- 2011-05 Invitation to „*Fast Solvers for Differential Equations*“ („*Schnelle Löser für Differentialgleichungen*“), an international conference held from the 22nd to the 28th of May 2011 at the *Mathematisches Forschungsinstitut Oberwolfach* (MFO), Germany.

- 2009-03 Invitation to „*Numerical Upscaling for Flow Problems: Theory and Applications*“, an international miniworkshop held from the 1st to the 7th of March 2009 at the *Mathematisches Forschungsinstitut Oberwolfach* (MFO), Germany.
- 2008-09 Invitation to „*The Mathematics of Growth and Remodelling of Soft Biological Tissues*“, an international mini-workshop held from the 31st of August to the 6th of September 2008 at the *Mathematisches Forschungsinstitut Oberwolfach* (MFO), Germany.
- 2008-05 Invitation to „*Fast Solvers for Large Systems of Partial Differential Equations*“ („Schnelle Löser für Differentialgleichungen“), an international conference held from the 18th to the 24th of May 2008 at the *Mathematisches Forschungsinstitut Oberwolfach* (MFO), Germany.
- 2007-07 Invitation to „*Interplay between Mechanics and Biology on Multiple Length Scales*“, an international workshop held from the 1st to the 4th of July 2007 in Castro Urdiales, Spain.

## 9.2 Invited Seminars

- 2011-11 Invited lecture at the Institute of Computational Science of the faculty of Informatics at the *Università della Svizzera Italiana* (USI), Lugano, Switzerland.
- 2008-06 Lecture at the Faculty of Mechanical Engineering of the University of Kragujevac, Serbia.
- 2007-04 Lecture at the Mechanics Seminars of the Mathematical Institute of the Serbian Academy of Sciences, Belgrade. Serbia.
- 2007-01 Lecture at the Simulation and Technology Laboratory (SIT), *Ruprecht-Karls Universität* Heidelberg, Germany.
- 2006-11 Lecture at the Molecular Biology Section of the Dept. of Biomedical Sciences and Technologies, Faculty of Medicine, University of Udine, Italy.

## 10. Refereeing Activity

### 10.1 International Scientific Journals

- Acta Bioengineering and Biomechanics
- Advances in Water Resources
- Central European Journal of Geosciences
- Computing and Visualization in Science
- Journal of Porous Media
- Journal of Theoretical Biology
- Mathematics and Mechanics of Solids



- Mechanics of Materials
- Physics of Fluids
- Physical Review E
- Theoretical and Applied Mechanics

## 10.2 Service as Guest Editor of Scientific Journals

- Guest Editor of „Computing and Visualization in Science“ (2012)

## 10.3 Scientific Books

- Book proposal for Wiley & Sons Publishing House; Author/Title details withheld

## 11. Scientific Collaborations, Research Projects and Research Activity

### 11.1 Scientific Collaborations

- External member of the research group „*Modellierung und Simulation*“ („Modelling and Simulation“) of the G-CSC, Goethe Universität Frankfurt, Frankfurt am Main, Germany.  
Research subjects:
  - Computational Fluid Dynamics;
  - Computational Electromagnetics;
  - Robust Crash Computations.
- Collaboration with Prof. S. Federico (Dept. of Mechanical and Manufacturing Engineering, The University of Calgary, Alberta, Canada).  
Research subjects:
  - Mechanical characterisation of the elastic and transport properties of biological tissues;
  - Thermodynamic of irreversible processes in biological tissues.
- Collaboration with Prof. T. Atanackovic (Dept. of Mechanics, University of Novi Sad, Serbia) and Dr. D. Zorica (Mathematical Institute, Serbian Academy of Arts and Sciences, Belgrade, Serbia).  
Research subjects:
  - Fractional Calculus and its applications.
- Collaboration with Prof. M.V. Micunovic (former member of the Faculty of Mechanical Engineering of the University of Kragujevac, Serbia).  
Research subjects:
  - Plastic waves in quasi-rate independent viscoplastic materials;
  - Transport properties and inelastic processes in biological tissues.

### 11.2 Participation to Research Projects

- E-Dur: Advancing the groundwater flow software d3f and r3t – Modelling of heat transport and free surfaces („*Weiterentwicklung der Rechenprogramme d3f und r3t – Modellierung des Wärmetransports und freier Oberflächen*“). Project funded by the BMWi, contract # 02E10326.
- A-Dur: Project for the implementation of inhomogeneities in flow and transport modelling using d3f and r3t. Project funded by the BMWi, contract # 02E10558.

- „Viscoelasticity of fractional type and shape optimization in the beam theory“. Project # 174005 financed by the Serbian Ministry of Education and Science.

### **11.3 Research Activity as a member of the G-CSC, Goethe Universität Frankfurt, Germany, according to the G-CSC Report 2011**

(<http://gcsc.uni-frankfurt.de/simulation-and-modelling/research>)

- Modelling Replication Dynamics of Hepatitis C Virus in 3D Space (with Markus Knodel, Pal Targett-Adams, Eva Herrmann, and Gabriel Wittum)
- Environmental Science: Density-Driven Flow in Porous Media (with Michael Lampe, and Gabriel Wittum)
- Environmental Science: Fractured Porous Media (with Sabine Stichel, Dmitry Logashenko, Sebastian Reiter, and Gabriel Wittum)
- Modelling Biogas Production (with Ivo Muha, Johannes Schneider, and Gabriel Wittum)
- Reduction of Numerical Sensitivities in Crash Simulations (with Raphael Prohl, and Gabriel Wittum)
- Multiscale Modelling of Biological Tissues (with Gabriel Wittum)
- Multiscale Numerics, Homogenisation and Coarse Graining (with Ivo Muha, Sabine Stichel, and Gabriel Wittum)

## **12. Publications**

### **12.1 Articles in International Scientific Journals**

#### ***Submitted articles***

1. Grillo, A., Tomic, A., Wittum, G., Federico, S. (2013). Remodelling in statistically oriented fibre-reinforced materials and Biological Tissues. *Submitted*.
2. Reiter, S., Logashenko, D., Grillo, A., Wittum, G. (2012). Preparation of grids for simulations of groundwater flow in fractured porous media. *Submitted*.
3. Grillo, A., Logashenko, D., Stichel, S., Wittum, G. (2012). Forchheimer correction in modelling flow and transport in fractured porous media. *Submitted*.

#### ***Published articles***

1. Giverso, C., Grillo, A., Preziosi, L. (2013). Influence of nucleus deformability on cell entry into cylindrical structures. *Biomech Model Mechanobiol*. In press. Available on-line at <http://link.springer.com/article/10.1007/s10237-013-0510-3>
2. Muha, I., Zielonka, S., Lemmer, A., Schönberg, M., Linke, B., Grillo, A., Wittum, G. (2012). Do two-phase biogas reactors separate biological processes? – Mathematical model of the distribution of anaerobic digestion phases among reactor stages. *Bioresource Technology*, **132**, 414-418.
3. Reiter, S., Logashenko, D., Stichel, S., Wittum, G., Grillo, A. (2012). Models and simulations of density-driven flow in fractured porous media. *International Journal of Computational Science and Engineering (IJCSE)*. In press. Available on-line at <http://www.inderscience.com/info/ingeneral/forthcoming.php?jcode=ijcse>
4. Grillo, A., Federico, S., Wittum, G. (2012). Growth, mass transfer, and remodeling in fiber-reinforced, multi-constituent materials. *International Journal of Non-Linear Mechanics*, **47**(2), 388-401.
5. Grillo, A., Lampe, M., Logashenko, D., Stichel, S., Wittum, G. (2012). Simulation of salinity- and thermohaline-driven flow in fractured porous media. *Journal of Porous Media*, **15**(5).
6. Muha, I., Grillo, A., Heisig, M., Schönberg, M., Linke, B., Wittum, G. (2012). Mathematical modelling of process liquor flow and acetoclastic methanogenesis under mesophilic conditions in a two-phase biogas reactor. *Bioresource Technology*, **106**, 1-9.
7. Federico, S., Grillo, A. (2012). Elasticity and permeability of porous fibre-reinforced materials in

- large deformations. *Mechanics of Materials*, **44**, 58-71.
8. Grillo, A., Lampe, M., Wittum, G. (2011). Modelling and Simulation of temperature-density-driven flow and thermodiffusion in porous media. *Journal of Porous Media*, **14(8)** 671-690.
  9. Micunovic, M.V., Albertini, C., Grillo, A., Muha, I., Wittum, G. (2011). Two-dimensional plastic waves in quasi rate independent viscoelastic materials. *Theoret. Appl. Mech.*, **38(1)**, 47-74.
  10. Muha, I., Stichel, S., Nägel, A., Grillo, A., Heisig, M., Wittum, G. (2010). Effective Diffusivity in membranes with tetrakaidekahedral cells and implications for the permeability of the human stratum corneum. *Journal of Membrane Science*. **368(1-2)**,18-25.
  11. Grillo, A., Lampe, M., Wittum, G. (2010). Three-dimensional simulation of the thermohaline-driven buoyancy of a brine parcel. *Computing and Visualization in Science*. **13**, 287-297.
  12. Grillo, A., Logashenko, D., Stichel, S., Wittum, G. (2010). Simulation of density-driven flow in fractured porous media. *Advances in Water Resources*, **33**, 1494-1507.
  13. Grillo, A., Federico, S., Wittum, G., Imatani, S., Giaquinta, G., Micunovic, M.V. (2009). Evolution of a fibre-reinforced growing mixture. *Nuovo Cimento C*, **32(1)**, 97-119.
  14. Federico, S., Grillo, A., Wittum, G. (2009). Considerations on incompressibility in Linear Elasticity. *Nuovo Cimento C*, **32(1)**, 81-87.
  15. Grillo, A., Wittum, G., Giaquinta, G., Micunovic, M.V. (2009). A multiscale analysis of growth and diffusion dynamics in biological materials. *International Journal of Engineering Science*, **47**, 261-283.
  16. Compagnini, G., Messina, E., Cataliotti, S., Grillo, A., Giaquinta, G. (2009). Diffusion dynamics of laser-ablated noble-metal nanoparticles in liquids. *Philosophical Magazine Letters*, **89(4)**, 250-256.
  17. Federico, S., Grillo, A., Giaquinta, G., Herzog, W. (2009). A semi-analytical solution for the confined compression of hydrated soft tissue. *Meccanica*, **44**, 197-205.
  18. Grillo, A., Jihna, A., Ait-Haddou, R., Federico, S., Giaquinta, G., Herzog, W. (2008). Directed transport of brownian particles in a changing temperature field. *Journal of Physics A: Math. Theoret.*, **41**, 015002.
  19. Federico, S., Grillo, A., Giaquinta, G., Herzog, W. (2008). Convex Fung-type potentials for biological tissues. *Meccanica*, **43(3)**, 279-288.
  20. Federico, S., Grillo, A., Imatani, S., Giaquinta, G., Herzog, W. (2008). An energetic approach to the analysis of anisotropic hyperelastic materials. *International Journal of Engineering Science*, **46(2)**, 164-181.
  21. Grillo, A., Zingali, G., Borrello, D., Giaquinta, G. (2007). Transport phenomena in living systems, and Continuum Physics. *La Rivista del Nuovo Cimento*, **30(11)**, 585-562.
  22. Grillo, A., Zingali, G., Borrello, D., Federico, S., Herzog, W., Giaquinta, G. (2007). A multiscale description of growth and transport in biological systems. *Theoret. Appl. Mech.*, **34(1)**, 51-86.
  23. Federico, S., Grillo, A., Herzog, W., Giaquinta, G., Imatani, S. (2007). Possible approaches in modelling rearrangement in a microstructural material. *Key Engineering Materials*, **340-341**, 137-142.
  24. Han, S.-K., Federico, S., Grillo, A., Giaquinta, G., Herzog, W. (2006). The mechanical behavior of chondrocytes predicted with a micro-structural model of articular cartilage. *Biomechanics and Modeling in Mechanobiology*, **6(3)**, 139-150.
  25. Grillo, A., Zingali, G., Federico, S., Herzog, W., Giaquinta, G. (2005). The role of material inhomogeneities on biological growth. *Theoretical and Applied Mechanics*, **32(1)**, 21-38.
  26. Federico, S., Grillo, A., La Rosa, G., Giaquinta, G., Herzog, W. (2005). A transversely isotropic, transversely homogeneous microstructural-statistical approach model of articular cartilage, *Journal of Biomechanics*, **38**, 2008-2018.
  27. Federico, S., Grillo, A., Herzog, W. (2004). A transversely isotropic composite with a statistical distribution of spheroidal inclusions: a geometrical approach to overall properties. *Journal of the Mechanics and Physics of Solids*, **52(10)**, 2309-2327.
  28. Grillo, A., Federico, S., Giaquinta, G., Herzog, W., La Rosa, G. (2003). Restoration of the symmetries broken by reversible growth in hyperelastic materials. *Theoretical and Applied Mechanics*, **30(4)**, 311-331.

## 12.2 Articles in Conference Proceedings

1. Federico, S., Grillo, A., Imatani, S. (2013). The linear elasticity tensor of incompressible materials. Proceedings of the 24<sup>th</sup> CANCAM, Saskatoon, Saskatchewan, Canada, June 2-6, 2013.
2. Grillo, A., Wittum, G. (2010). Growth and Mass Transfer in Multi-Constituent Biological Materials. *Am. Inst. Phys. CP1281*, 355-358, ICNAAM, Numerical Analysis and Applied Mathematics, International Conference 2010. Vol. 1. Edited by T.E. Simos, G. Psihoyos, and Ch. Tsitouras.
3. Federico, S., Grillo, A. (2010). Porous Materials Reinforced by Statistically Oriented Fibres. *Am. Inst. Phys. CP1281*, 351-354, ICNAAM, Numerical Analysis and Applied Mathematics, International Conference 2010. Vol. 1. Edited by T.E. Simos, G. Psihoyos, and Ch. Tsitouras.
4. Atanackovic, T.M., Grillo, A., Wittum, G., Zorica, D. (2010). An Application of Fractional Calculus to Growth Mechanics. Fractional Derivatives and Applications (FDA2010), Badajoz, Spain, October 2010.
5. Atanackovic, T.M., Grillo, A., Wittum, G., Zorica, D. (2010). Fractional Jeffreys-type diffusion equation. Fractional Derivatives and Applications (FDA2010), Badajoz, Spain, October 2010.
6. Grillo, A., Zingali, G., Borrello, D., Federico, S., Herzog, W., Giaquinta, G. (2007). Interaction between growth and transport phenomena in biological mixtures. *Journal of Physics: Conference Series*, **62**, 43-71.

## 12.3 Book chapters

1. Grillo, A., Givero, C., Favino, M., Krause, R., Lampe, M., Wittum, G. (2012). *Mass Transport in Growing Porous Media*. In J.M.Q. Delgado et al. (Eds.), Numerical Analysis of Heat and Mass Transfer in Porous Media, Springer-Verlag Berlin Heidelberg 2012, DOI: 10.1007/978-3-642-30532-0\_2.
2. Stichel, S., Logashenko, D., Grillo, A., Reiter, S., Lampe, M., Wittum, G. (2011). *Numerical methods for flow in fractured porous media*. In J.M.P.Q. Delgado (ed.), Heat and Mass Transfer in Porous Media, Springer-Verlag, Berlin, Heidelberg 2011.
3. Lampe, M., Grillo, A., Wittum, G. (2011). Software Framework UG: Parallel Simulation of a Three-Dimensional Benchmark Problem for Thermohaline-Driven Flow. In W.E. Nagel et al. (Eds.), High Performance Computing in Science and Engineering 2010, Springer-Verlag Berlin Heidelberg 2011, DOI10.1007/978-3-642-15748-6\_40.

## 12.4 Correspondence with International Journals

1. Grillo, A., Jihna, A., Federico, S., Ait-Haddou, R., Herzog, W., Giaquinta, G. (2010). Erratum to “Directed transport of brownian particles in a changing temperature field. *Journal of Physics A: Math. Theoret.*, **41**, 015002.”

## 12.5 Abstracts Accepted in Conferences and Workshops

1. Grillo, A., Logashenko, D., Stichel, S., Wittum, G. (2013). A comparative study of Darcy and Forchheimer’s laws in modelling density-driven flow in fractured porous media. *XXI Congresso Associazione Italiana di Meccanica Teorica e Applicata – AIMETA (21<sup>st</sup> Congress of the Italiana Association of Theoretical and Applied Mechanics)*, to be held at the Polytechnic of Turin, Turin, Italy, 17<sup>th</sup>-20<sup>th</sup> of September 2013.
2. Federico, S., Grillo, A. (2013). A model of porous, fibre-reinforced materials. *XXI Congresso Associazione Italiana di Meccanica Teorica e Applicata – AIMETA (21<sup>st</sup> Congress of the Italiana Association of Theoretical and Applied Mechanics)*, to be held at the Polytechnic of Turin, Turin, Italy, 17<sup>th</sup>-20<sup>th</sup> of September 2013.
3. Stichel, S., Grillo, A., Logashenko, D., Vogel, A., Wittum, G. (2013). Modelling and computation of thermohaline groundwater flows. *XXI Congresso Associazione Italiana di Meccanica Teorica e Applicata – AIMETA (21<sup>st</sup> Congress of the Italiana Association of Theoretical and Applied Mechanics)*, to be held at the Polytechnic of Turin, Turin, Italy, 17<sup>th</sup>-20<sup>th</sup> of September 2013.
4. Federico, S., Grillo, A., Imatani, S. (2013). The Linear Elasticity Tensor of Incompressible Materials. *Proceedings of the 49<sup>th</sup> Annual Technical Meeting of Society of Engineering Science*, Brown University,

- Providence, USA, 28<sup>th</sup>-31<sup>st</sup> of July 2013.
5. Federico, S., Grillo, A., Herzog, W. (2013). Transversely Isotropic Composites with Statistically Oriented Inclusions, *Proceedings of the 49<sup>th</sup> Annual Technical Meeting of Society of Engineering Science*, Brown University, Providence, USA, 28<sup>th</sup>-31<sup>st</sup> of July 2013.
  6. Federico, S., Grillo, A., Segev, R. (2013). Material counterpart of Darcy's law in terms of Differential Geometry. *The 4<sup>th</sup> Canadian Conference on Nonlinear Solid Mechanics – CanCNSM 2013*, McGill University, Montréal, Canada, 23<sup>rd</sup>-26<sup>th</sup> of July 2013.
  7. Knodel, M.M., Bucher, D., Geiger, R., Ge, L., Grillo, A., Wittum, G., Schuster, C., Queisser, G. (2013). Synaptic boutons sizes are tuned to best fit their physiological performances. *Twenty Second Annual Computational Neuroscience Meeting: CNS\*2013*, Paris, France, 13<sup>th</sup>-18<sup>th</sup> of July 2013.
  8. Grillo, A., Wittum, G., Tomic, A., Federico, S. (2013). Remodelling in statistical oriented, fibre-reinforced composite materials. *New Trends in Solid Mechanics: Coupled Fields and Multiscale Modelling*, Castro Urdiales, Spain, 24<sup>th</sup>-28<sup>th</sup> of June 2013.
  9. Grillo, A., Logashenko, D., Stichel, S., Wittum, G. (2013). Forchheimer's correction in problems of density-driven flow in fractured porous media. *SIAM Conference on Mathematical and Computational Issues in the Geosciences*, Padua, Italy, 17<sup>th</sup>-20<sup>th</sup> of June 2013.
  10. Federico, S., Grillo, A. (2013). Porous Materials with Statistical Fibre-Reinforcement, *Proceedings of the Workshop on Advances in Applied Mathematics and Mechanics*, Manchester, UK, 5<sup>th</sup>-7<sup>th</sup> of June 2013.
  11. Federico, S., Grillo, A., Imatani, S., (2013). The linear elasticity tensor of incompressible materials. *24<sup>th</sup> Canadian Congress of Applied Mechanics – CANCAM 2013*, 2<sup>nd</sup>-6<sup>th</sup> of June 2013, Saskatoon, SK, Canada.
  12. Grillo, A., Wittum, G., Tomic, A., Federico, S. (2012). Remodelling in statistical fibre-reinforced composites. *European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2012)*, Wien, Austria, 10<sup>th</sup>-14<sup>th</sup> of September 2012.
  13. Grillo, A., Giverso, C., Favino, M., Krause, R., Lampe, M., Wittum, G. (2012). Mechanics of multiphasic materials with applications to biological problems. *European Multigrid Conference 2012 (EMG 2012)*, Schwetzingen, Germany, 13<sup>th</sup> - 17<sup>th</sup> of August 2012.
  14. Stichel, S., Logashenko, D., Grillo, A., Wittum, G. (2012). Dimension-adaptive approaches for flow in fractured porous media. *European Multigrid Conference 2012 (EMG 2012)*, Schwetzingen, Germany, 13<sup>th</sup> - 17<sup>th</sup> of August 2012.
  15. Federico, S., Grillo, A. (2012). Large deformation model of elasticity and permeability of articular cartilage. *European Solid Mechanics Conference (ESMC2012)*, Graz, Austria, 9<sup>th</sup> – 13<sup>th</sup> of July 2012.
  16. Giverso, C., Grillo, A., Preziosi, L. (2012). Mass transport in cell aggregates with variable mass. *Diffusion in Solids and Liquids (DSL2012)*, Istanbul, Turkey, 25<sup>th</sup> – 29<sup>th</sup> of June 2012.
  17. Giverso, C., Grillo, A. (2012). Modelling the mechanical response of growing cellular aggregates. *11<sup>th</sup> Congress of the Italian Society for Applied and Industrial Mathematics (SIMAI 2012)*. MPS25 – Mathematical modelling in biomedicine I, Turin, Italy, 25<sup>th</sup> – 25<sup>th</sup> of June 2012.
  18. Prohl, R., Grillo, A., Wittum, G. (2012). Models and robust algorithms in crash simulations. *ICDM2012. International Conference on Damage Mechanics*. Belgrade, Serbia, 25<sup>th</sup>-27<sup>th</sup> of June 2012.
  19. Grillo, A. (2012). Mechanics of multiphasic materials with applications to biological problems. *2<sup>nd</sup> International Conference on Contemporary Problems in Mathematics, Mechanics and Informatics (CPMMI2012)*. State University of Novi Paza, Serbia, 17<sup>th</sup>-19<sup>th</sup> of June 2012.
  20. Grillo, A., Lampe, M., Logashenko, D., Reiter, S., Stichel, S., Wittum, G. (2011). An overview of models of density-driven flow in fractured porous media. *MSDL2011. Conference on Modeling Storage in Deep Layers*. Schwetzingen Castle, Germany, 12<sup>th</sup>-14<sup>th</sup> of October 2011.
  21. Stichel, S., Logashenko, D., Grillo, A., Wittum, G. (2011). Numerical models for flow in fractured porous media. *MSDL2011. Conference on Modeling Storage in Deep Layers*. Schwetzingen Castle, Germany, 12<sup>th</sup>-14<sup>th</sup> of October 2011.
  22. Grillo, A., Lampe, M., Logashenko, D., Reiter, S., Stichel, S., Wittum, G. (2011). Models and simulations of variable-density flow in fractured porous media. *ICCE2011 2<sup>nd</sup> International Conference on Computational Engineering*. Technische Universität Darmstadt, Germany, 4<sup>th</sup>-6<sup>th</sup> of October 2011.

23. Grillo, A., Federico, S., Wittum, G. (2011). A Study of Growth and Remodelling via Noether's Theorem. *XX Congresso di Meccanica Teorica ed Applicata – AIMETA (20<sup>th</sup> Congress on Theoretical and Applied Mechanics) – AIMETA 2011*, Bologna, Italy, 12<sup>th</sup>-15<sup>th</sup> of September 2011.
24. Federico, S., Grillo, A., (2011). Fibre-Reinforced Hydrated Soft Tissues. *EUROMAT 2011* (Montpellier, France, 12<sup>th</sup> – 15<sup>th</sup> of September 2011).
25. Grillo, A., Federico, S., Wittum, G. (2011). Growth, Remodelling and Noether's Theorem. *Second International Conference on Material Modeling (ICMM2)*, Paris, France, 31<sup>st</sup> of August – 2<sup>nd</sup> of September 2011.
26. Federico, S., Grillo, A. (2011). Porous Materials with Statistical Fibre-Reinforcement: Elasticity and Permeability. *Second International Conference on Material Modeling (ICMM2)*, Paris, France, 31<sup>st</sup> of August – 2<sup>nd</sup> of September 2011.
27. Grillo, A., Lampe, M., Wittum, G. (2011). Mass Transport in a Growing Porous Media. *Diffusion in Solids and Liquids 2011 (DSL2011)*, Algarve, Portugal, 26<sup>th</sup>-30<sup>th</sup> of June 2011.
28. Grillo, A., Lampe, M., Logashenko, D., Reiter, S., Stichel, S., Wittum, G. (2011). Models and Simulations of Variable-Density Flow. *Fast Solvers for Differential Equations (Schnelle Löser für Differentialgleichungen)*. Oberwolfach, Germany, 22<sup>nd</sup>-28<sup>th</sup> of May 2011.
29. Federico, S., Grillo, A. (2010). Porous Materials Reinforced by Statistically Oriented Fibres. *SES 2010 Annual Technical Meeting. Conference in honour of Ray Ogden, recipient of Prager Medal 2010*. Iowa, USA 4<sup>th</sup>-6<sup>th</sup> of October 2010.
30. Grillo, A., Lampe, M., Wittum, G. (2010). A model of growth and mass transfer in biphasic, multi-constituent materials. *SES 2010 Annual Technical Meeting. Conference in honour of Ray Ogden, recipient of Prager Medal 2010*. Iowa, USA 4<sup>th</sup>-6<sup>th</sup> of October 2010 (Participation cancelled).
31. Atanackovic, T.M., Grillo, A., Wittum, G., Zorica, D. (2010). An Application of Fractional Calculus to Growth Mechanics. *FDA2010*, Badajoz, Spain, 18<sup>th</sup> – 20<sup>th</sup> of October 2010.
32. Atanackovic, T.M., Grillo, A., Wittum, G., Zorica, D. (2010). Fractional Jeffreys-type diffusion equation. *FDA2010, Spain*, 18<sup>th</sup> – 20<sup>th</sup> of October 2010.
33. Grillo, A., Wittum, G. (2010). Growth and Mass Transfer in Multi-Constituent Biological Materials. *ICNAAM2010 International Conference on Numerical Analysis and Applied Mathematics*, Rhodes, Greece, 19<sup>th</sup> – 25<sup>th</sup> of September 2010.
34. Federico, S., Grillo, A., (2010). Porous Materials Reinforced by Statistically Oriented Fibres. *ICNAAM2010 International Conference on Numerical Analysis and Applied Mathematics*, Rhodes, Greece, 19<sup>th</sup> – 25<sup>th</sup> of September 2010.
35. Lampe, M., Grillo, A., Wittum, G. (2010). Three-dimensional visualization of the buoyancy of a brine parcel. *Diffusion in Solids and Liquids 2011 (DSL2010)*, Paris, France, 5<sup>th</sup> – 7<sup>th</sup> of July 2010.
36. Stichel, S., Logashenko, D., Grillo, A., Wittum, G. (2010). Methods for computing density-driven flow in fractured porous media. *Diffusion in Solids and Liquids 2011 (DSL2010)*, Paris, France, 5<sup>th</sup> – 7<sup>th</sup> of July 2010.
37. Grillo, A., Logashenko, D., Stichel, S., Wittum, G. (2010). Simulation of density-driven flow in fractured porous media. *Diffusion in Solids and Liquids 2011 (DSL2010)*, Paris, France, 5<sup>th</sup> – 7<sup>th</sup> of July 2010.
38. Grillo, A., Wittum, G. (2010). Growth, Mass Transfer, and Remodelling in Multiphasic Biological Materials. MPS27 – Mechanics in Biology. *SIMAI 2010 – Symposium "Mechanics in Biology"*, Cagliari, Italy, 21<sup>st</sup> – 25<sup>th</sup> of June 2010.
39. Lampe, M., Grillo, A., Wittum, G. (2010). Three-dimensional Simulation of the thermohaline-driven buoyancy of a brine parcel. *European Multigrid Conference*, 22<sup>nd</sup> – 24<sup>th</sup> of June 2010, Schwetzingen, Germany, 2010.
40. Micunovic, M.V., Grillo, A., Muha I., Wittum, G. (2010). Two-dimensional plastic waves in quasi-rate independent viscoplastic materials (revisited). *ECCM2010*, Paris, France, 21<sup>st</sup> – 25<sup>th</sup> of May 2010.
41. Grillo, A., Wittum, G. (2010). Considerations on growth and mass transfer in multiphasic materials. *ECCM2010*, Paris, France 21<sup>st</sup> - 25<sup>th</sup> of May 2010.
42. Federico, S., Grillo, A., Wittum, G. (2010). Large Strain Permeability of Articular Cartilage, *Sixth World Congress of Biomechanics (WCB2010)*, Singapore, 1<sup>st</sup> – 6<sup>th</sup> of August 2010.

43. Federico, S., Grillo, A., Guaily, A. (2010). Non-Linear Model for Compression Tests on Articular Cartilage. *Sixth World Congress of Biomechanics (WCB2010)*, Singapore, 1<sup>st</sup> – 6<sup>th</sup> of August 2010.
44. Micunovic, M.V., Grillo, A., Muha, I., Wittum, G. (2009). Two dimensional plastic waves in quasi rate independent viscoplastic materials. *ESMC2009, 7<sup>th</sup> EUROMECH*, Lisbon, Portugal, 7<sup>th</sup> – 11<sup>th</sup> of September 2009.
45. Grillo, A., Logashenko, D., Wittum, G. (2009). Study of a transport problem in a two-dimensional porous medium. *Cosserat + 100. International Conference on the legacy of "Theorie des Corps Deformables"*, Paris, France, 15<sup>th</sup> – 17<sup>th</sup> of July 2009.
46. Grillo, A., Lampe, M., Wittum, G. (2009). Modelling and simulation of thermodiffusion in porous media with density- and temperature-driven flow. *Diffusion in Solids and Liquids 2009 (DSL2009)*, 24<sup>th</sup> – 26<sup>th</sup> of June 2009, Rome, Italy.
47. Logashenko, D., Grillo, A., Lampe, M. (2009). Simulation of density and temperature driven flow and contaminant transport in fractured porous media using d3f and r3t. *International conference of the Society of Industrial and Applied Mathematics – SIAM Conference*, 14<sup>th</sup> – 19<sup>th</sup> of June 2009, Leipzig, Germany.
48. Grillo, A., Lampe, M., Micunovic, M.V., Wittum, G. (2009). Modelling and simulation of thermodiffusion in porous media. *II Congress of the Serbian Society of Mechanics*, Palic, Serbia, 1<sup>st</sup> – 6<sup>th</sup> of June 2009.
49. Grillo, A., Logashenko, D., Micunovic, M.V., Wittum, G. (2009). Study of a transport problem in a two-dimensional porous medium. *II Congress of the Serbian Society of Mechanics*, Palic, Serbia, 1<sup>st</sup> – 6<sup>th</sup> of June 2009.
50. Grillo, A., Wittum, G. (2009). A consideration on the applicability of the Cahn-Hilliard model in Neurobiology. *DMSN2009*, Frankfurt am Main, Germany, 25<sup>th</sup> – 26<sup>th</sup> of April 2009.
51. Grillo, A., Logashenko, D., Wittum, G. (2009). Mathematical modelling of fractured porous media. *Mini-workshop on Numerical Upscaling for Flow Problems: Theory and Applications*, Oberwolfach, Germany, 1<sup>st</sup> – 7<sup>th</sup> of March 2009.
52. Federico, S., Grillo, A. (2008). Considerations on incompressibility in linear elasticity. *8<sup>th</sup> International Seminar on Geometry, Continua, and Microstructure – GCM8*, Catania, Italy, 10<sup>th</sup> – 12<sup>th</sup> of October 2008.
53. Grillo, A., Wittum, G., Giaquinta, G., Micunovic, M.V. (2008). A thermodynamically consistent growth law including Eshelby tensor and chemical potential. *8<sup>th</sup> International Seminar on Geometry, Continua, and Microstructure – GCM8*, Catania, Italy, 10<sup>th</sup> – 12<sup>th</sup> of October 2008.
54. Grillo, A., Wittum, G., Giaquinta, G., Micunovic, M.V. (2008). Analysis of growth and diffusion dynamics in soft biological materials. *Mini-workshop on growth and remodelling in soft biological materials*, Oberwolfach, Germany, 31<sup>st</sup> of August – 12<sup>th</sup> of October 2008.
55. Grillo, A., Wittum, G., Giaquinta, G., Micunovic, M.V. (2008). A multiscale analysis of growth and diffusion dynamics in biological materials. *Joint Symposium of Irish Mechanics Society and Irish Society for Scientific Computation*. Dublin, EIRE, 15<sup>th</sup> - 16<sup>th</sup> of May, 2008.
56. Federico, S., Grillo, A., Giaquinta, G., Herzog, W. (2007). A semi-discrete approach to the confined compression of biphasic mixtures. *XVIII Congresso di Meccanica Teorica ed Applicata (18<sup>th</sup> Congress on Theoretical and Applied Mechanics) -AIMETA 2007*, 11<sup>th</sup> – 14<sup>th</sup> of September 2007, Brescia, Italy.
57. Grillo, A., Zingali, G., Borrello, D., Federico, S., Herzog, W., Giaquinta, G. (2007). A multiscale approach to modelling transport phenomena in growing living systems. *VIII Giornata di Studio Biomateriali e Biomeccanica (8<sup>th</sup> Workshop on Biomaterials and Biomechanics)*, Catania, Italy, 13<sup>th</sup> of July 2007.
58. Grillo, A., Zingali, G., Borrello, D., Federico, S., Herzog, W., Giaquinta, G. (2007). A description of biological growth involving different scales of observation. *International Workshop on the Interplay between Mechanics and Biology on multiple length scales*. Castro Urdiales, Spain, 1<sup>st</sup> – 4<sup>th</sup> of July 2007.
59. Federico, S., Grillo, A., Giaquinta, G., Herzog, W. (2007). Considerations on Fung's elastic potentials for soft tissues. *VIII Giornata di Studio Biomateriali e Biomeccanica (8<sup>th</sup> Workshop on Biomaterials and Biomechanics)*, Catania, Italy, 13<sup>th</sup> of July 2007.
60. Grillo, A., Jihna, A., Ait-Haddou, R., Federico, S., Giaquinta, G., Herzog, W. (2007). Directed transport of Brownian particles in a changing temperature field. *Workshop on data-driven modelling and*

- simulation of signal processing in neurons*, Hohenwart, Germany, 14<sup>th</sup> – 17<sup>th</sup> of May 2007.
61. Grillo, A., Zingali, G., Borrello, D., Federico, S., Herzog, W., Giaquinta, G. (2007). A multiscale description of growth and transport phenomena in biological tissues. *Proceedings of the 1<sup>st</sup> Serbia (26<sup>th</sup> Yugoslavian) Congress on Theoretical and Applied Mechanics*, 10<sup>th</sup> – 13<sup>th</sup> of April 2007.
  62. Federico, S., Grillo, A., Giaquinta, G., Herzog, W. (2007). On the convexity of Fung's potentials. *Proceedings of the International Society of Biomechanics, 21<sup>st</sup> Congress*, Taipei, Taiwan, 1<sup>st</sup> – 5<sup>th</sup> of July 2007.
  63. Grillo, A., Zingali, G., Borrello, D., Federico, S., Herzog, W., Giaquinta, G. (2006). Interaction between growth and transport phenomena in living mixtures. *Proceedings of the 7<sup>th</sup> International Seminar on Geometry, Continua, and Microstructure – GCM7*, Lancaster, UK, 25<sup>th</sup> – 27<sup>th</sup> of September 2006.
  64. Grillo, A., Federico, S., Ait-Haddou, R., Giaquinta, G., Herzog, W. (2006). Reversible ratchets in the presence of thermal fluctuations. *Proceedings of the World Congress on Medical Physics and Biomedical Engineering*, Seoul, South Korea, 27<sup>th</sup> of August – 1<sup>st</sup> of September 2006.
  65. Grillo, A., Federico, S., Ait-Haddou, R., Giaquinta, G., Herzog, W. (2006). Reversible ratchets in closed systems. *Proceedings of the Fifth World Congress of Biomechanics*, Munich, Germany, 29<sup>th</sup> of July – 4<sup>th</sup> of August 2006.
  66. Federico, S., Grillo, A., Herzog, W., Giaquinta, G., Imatani, S. (2006). Microstructural rearrangement of biological composites. *Proceedings of AEPA 2006 – The 8<sup>th</sup> Asia-Pacific Symposium on Engineering Plasticity and its Applications*, Nagoya, Japan, 25<sup>th</sup> – 29<sup>th</sup> of September 2006.
  67. Federico, S., Grillo, A., Giaquinta, G., Herzog, W. (2006). Anisotropy, inhomogeneity, and non-linearity of articular cartilage. *Proceedings of the 24<sup>th</sup> Annual Meeting of the Canadian Biomaterials Society*, Calgary, Canada, 26<sup>th</sup> – 28<sup>th</sup> of May 2006.
  68. Han, S.-K., Federico, S., Grillo, A., Herzog, W. (2005). Influence of the pericellular microenvironment on chondrocyte modelling. *Proceedings of the International Society of Biomechanics. 20<sup>th</sup> Congress and 29<sup>th</sup> Annual Meeting of the American Society of Biomechanics*, Cleveland, USA, 31<sup>st</sup> of July – 5<sup>th</sup> of August 2005.
  69. Federico, S., Grillo, A., Giaquinta, G., Herzog, W. (2005). A non-linear, anisotropic, inhomogeneous model of articular cartilage. *Proceedings of the International Society of Biomechanics. 20<sup>th</sup> Congress and 29<sup>th</sup> Annual Meeting of the American Society of Biomechanics*, CD-ROM, Cleveland, USA, 31<sup>st</sup> of July – 5<sup>th</sup> of August 2005.
  70. Han, S.-K., Federico, S., Grillo, A., Herzog, W. (2005). Chondrocyte modelling in the pericellular microenvironment. *Proceedings of the 6<sup>th</sup> Alberta Biomedical Engineering Conference*, paper 26, Banff, Canada, 21<sup>st</sup> – 23<sup>rd</sup> of October 2005.
  71. Han, S.-K., Federico, S., Grillo, A., Giaquinta, G., Musumeci, F., Herzog, W. (2004). The mechanical behavior of chondrocytes using a micro-structural FE model. *Proceedings of the 5<sup>th</sup> Alberta Biomedical Engineering Conference*, Banff, Canada, 22<sup>nd</sup> – 24<sup>th</sup> of October 2004.
  72. Han, S.-K., Federico, S., Grillo, A., Giaquinta, G., Musumeci, F., Herzog, W. (2004). Micro-structural model of the mechanical environment of chondrocytes. *Proceedings of the 5<sup>th</sup> combined meeting of the Orthopaedic Research Society of the USA, Canada, Japan and Europe*, Banff, Canada, 10<sup>th</sup> – 13<sup>th</sup> of October 2004.
  73. Han, S.-K., Federico, S., Grillo, A., Giaquinta, G., Musumeci, F., Herzog, W. (2004). FE analysis of the mechanical behavior of chondrocytes. *Proceedings of the 28<sup>th</sup> annual meeting of the American Society of Biomechanics*, CD-ROM, Portland, USA, 8<sup>th</sup> – 11<sup>th</sup> of September 2004.
  74. Federico, S., Grillo, A., Herzog, W., La Rosa, G., Giaquinta, G. (2003). Microstructural-Statistical approach to articular cartilage. *Proceedings of the "VI Giornata di Studio – Materiali innovativi in Biomeccanica" (6<sup>th</sup> Workshop on innovative materials in Biomechanics)*, Catania, Italy, 12<sup>th</sup> of December 2003.



## 13. Personal Information and Other Interests

### 13.1 Personal Skills

I am a positive person, who enjoys working in team, sharing ideas and talking to people. My personality is open. I believe that the equilibrium between organization and flexibility is an important ingredient for a nice atmosphere at work. I like to cooperate with colleagues and to promote events that make people socialize and feel comfortable with each other. I equally love research and teaching, and I always try to harmonize them by assisting students and younger colleagues.

### 13.2 Other Interests

#### *Music*

- Non-professional piano player
- Non-professional singer (former member of the choir of my former department, the G-CSC Chor, directed by Prof. G. Wittum [<http://gcsc.uni-frankfurt.de/g-csc-choir>]).

#### *Sports*

- Hiking, Horse-riding, Swimming.

## 14. Legenda

- BMWi: „Deutsches Bundesministerium für Wirtschaft und Technologie“ (German Federal Ministry of Economy and Technology).
- CNISM: „Consorzio Nazionale Interuniversitario di Scienze Fisiche della Materia“ (Inter-University National Consortium of Physical Sciences of the Matter).
- DMFCI: „Dipartimento di Metodologie Fisiche e Chimiche per l'Ingegneria“ (Department of Physical and Chemical Methodologies for Engineering), Università degli Studi di Catania, Italy.
- HPL: Human Performance Laboratory, University of Calgary, Calgary, Canada.
- MIUR: „Ministero Italiano dell'Università e della Ricerca“ (Italian Ministry of Education, University and Research).

Dr. Grillo, Alfio Salvatore