



Alberto Salvadori

**CURRICULUM VITAE**

JUNE 2017

*Alberto Salvadori*

## Academic summary

scientific articles in national scientific journals	1
scientific articles in international scientific journals	46
articles for scientific divulgement, internal and technical reports	25
editor in international journals	1(2)
books (edited)	2(4)
peer reviewed conference proceedings	49
chief organizer of international conferences	3
invited lectures in conferences and congresses	10
invited seminars at universities and companies	23
papers presented in congresses, conferences, etc	140
computer codes	4
advised theses and final projects	58
advised Ph.D. students	7
defended theses	2

## Current appointments

2014 – presently: Associate Professor in the “Mechanics of solids and structures” at the University of Brescia, Italy. National habilitation to full professorship since 2017.

2015 - presently: Founder and head of the Multiscale Mechanics and Multiphysics of Materials lab at the University of Brescia

2017 - presently: Director of the Research Center on Seismology and Structural Dynamics at the University of Brescia

## Former appointments

2015 – 2017: Research Assistant Professor in the Aerospace and Mechanical Engineering Department, Notre Dame University, USA.

2014 - 2015 : Marie-Curie fellow in the Mechanical Engineering Department, TU/e Eindhoven, The Netherlands.

2003 - 2014: Assistant Professor in the “Mechanics of solids and structures” at the University of Brescia, Italy.

2000 - 2003: Untenured Assistant Professor in the “Mechanics of solids and structures” at the University of Brescia, Italy.

## Education

2000 : Philosophy Doctor with the dissertation “Quasi brittle fracture mechanics by cohesive crack models and symmetric Galerkin Boundary Element Method”, advised by Professor A. Carini (full professor in “Scienza delle costruzioni” at the Università degli Studi di Brescia) and Professor P.B. Shing (Full Professor at the University of California at S.Diego, USA).

1995 : Graduation (5 years, generally acknowledged as United States Master degree) (cum laude) in Civil Engineering at the “Università degli Studi di Brescia” presenting the final project: “On recent numerical developments for Boundary elements in transient heat conduction”, advised by Prof. M. Diligenti, full professor in Numerical analysis by the Università degli Studi di Parma.

### *Experience abroad during education*

August 1998 – February 1999 : PhD visiting student at the University of Colorado at Boulder (CO, USA), under the guidance of Professor B. Shing.

October 1991 – February 1992 : Erasmus students interchange program sponsorship at the FachHochSchuele fuer Technik, Stuttgart (Germany).

## **Part 1 - Contribute to research**

## International journal Editor

Member of Editorial board

1. *Frontiers in Mechanics of Materials*, Editorial Board - 2014 -

Guest editor

2. *Computational Mechanics*, April 2013, Volume 51, Issue 4, Special issue - proceedings of IABEM 2011 held in Brescia, September 2011;
3. *International Journal of Fracture* - Issue 1-2 – November 2013, Special Issue: Fracture Phenomena in Nature and Technology / Guest Edited by D. Bigoni, A. Carini, M. Gei and A. Salvadori

## Edited books:

International

1. *Fracture Phenomena in Nature and Technology - Proceedings of the IUTAM Symposium on Fracture Phenomena in Nature and Technology held in Brescia, Italy, 1-5 July 2012* - Bigoni, D., Carini, A., Gei, M., Salvadori, A. (Eds.) - Publisher: Springer International Publishing AG Hardback, 2014, VI, 266 p. 184 illus., 128 illus. in color. ISBN 978-3-319-04396-8

National

2. Carini, A., Salvadori, A. - *Proceedings of the congress: "Il dopo terremoto della Valsabbia e del Garda: tra esigenze di tutela e requisiti di sicurezza"*, Aracne Ed., 2009
3. Carini, A., Salvadori, A. - *"Tecniche innovative per la protezione sismica di edifici strategici e pubblici: commemorare per imparare"*, Publisher Creations, Ed., 2012

## Peer reviewed journal publications

Book chapters

1. Salvadori A., Grazioli D., "Chapter 19 - Computer simulation for battery design and lifetime prediction", *Advances in battery technologies for electric vehicles*, Edited by: Bruno Scrosati, Juergen Garche and Werner Tillmetz, 2015

ISI International journals articles.

1. A. Carini, M. Diligenti, A. Salvadori, "Implementation of a symmetric boundary element method in transient heat conduction with semi-analytical integrations" - *Int. J. Numer. Meth. Engng.*, 46, 1819-1843, (1999)

2. A. Salvadori, "Analytical integrations of hypersingular kernel in 3D BEM potential problems", *Comp. Methods in Appl. and Mech. Engrg.*, 190(31), 3957-3975, (2001)
3. A. Salvadori, "Analytical integrations in 2D BEM elasticity" - *Int. J. Numer. Meth. Engng.*, 53(7), 1695-1719, (2002)
4. A. Carini, A. Salvadori, "Analytical integrations in 3D BEM: preliminaries" - *Computational Mechanics* 28, 177-185, (2002)
5. A. Aimi, M. Diligenti, F. Lunardini, A. Salvadori, "A new application of the panel clustering method for 3D SGBEM", - *Computer methods in engineering science* - 4(1), 31-50, (2003)
6. A. Salvadori, "A symmetric boundary integral formulation for cohesive interface problems" - *Computational Mechanics* - 32 (4-6), 381-391, (2003)
7. A. Aimi, M. Diligenti, F. Freddi, A. Salvadori, "Restriction matrices for SGBEM applications" - *Computational Mechanics* - 32 (4-6), 430-444, (2003)
8. Salvadori, A., Gray, L.: "Analytical integrations and SIFs computation in 2D fracture mechanics" - *Int. J. Numer. Meth. Engng* 2007; 70:445-495
9. A. Salvadori, "Hypersingular boundary integral equations and the approximation of the stress tensor" - *Int. J. Numer. Meth. Engng* 2007; 72:722-743
10. A. Salvadori: "Infinite boundary elements in 2D elasticity" - *Engineering Analysis with Boundary Elements* 32 (2008) 122-138
11. A. Salvadori: "A plasticity framework for (linear elastic) fracture mechanics" - *Journal of the Mechanics and Physics of Solids*, 56 (2008) 2092-2116
12. A. Salvadori, "Ultimate strength of adjustable telescopic steel props according to standard EN 1065.", *Journal of Constructional Steel Research* 65 (2009), pp. 1964-1970
13. Phan A.-V., Gray L.J., and Salvadori A., "Symmetric-Galerkin boundary element method for dynamic fracture analysis in the frequency domain", *Mechanics Research Communications* 37 (2010) 177-183
14. Salvadori, A., Temponi, A., "Analytical integrations for the approximation of 3D hyperbolic scalar boundary integral equations", *Engineering Analysis with Boundary Elements* 34, 977-994, (2010)
15. Salvadori, A., "Crack kinking in brittle materials", *Journal of the Mechanics and Physics of Solids*, 58 (2010) 1835-1846
16. Salvadori, A., "Analytical integrations in 3D BEM for elliptic problems: evaluation and implementation", *Int. J. Numer. Meth. Engng* 2010; 84: 505-542
17. Phan A.-V., Gray L.J., and Salvadori A., "Transient analysis of the dynamic stress intensity factors using SGBEM for frequency-domain elastodynamics", *Computer Methods in Applied Mechanics (CMAME)*, 2010; 199: 3039-3050
18. Tavera, L., Mantic, V., Salvadori, A., Gray, L.J., Paris F., "SGBEM for cohesive cracks in homogeneous media" , *Key Engineering Materials Vol. 454* (2011) pp 1-10
19. Phan A.-V., Gray L.J., and Salvadori A., "Symmetric-Galerkin boundary element transient analysis of the DSIFs for the interaction of a crack with a circular inclusion", *Key Engineering Materials Vol. 454* (2011) pp 79-96
20. Salvadori, A., Carini, A., "Minimum theorems in incremental linear elastic fracture mechanics", *International Journal of Solids and Structures*, 48 (2011) 1362-1369
21. A.-V. Phan, V. Guduru, A. Salvadori and L.J. Gray, "Frequency domain analysis by the exponential window method and SGBEM for

- elastodynamics”, *COMPUTATIONAL MECHANICS*, 48(5), Pages: 615-630 (2011)
22. Salvadori A., Schanz M., “Editorial - Special Issue Dedicated to IABEM 2011”, *Computational Mechanics*, Volume 51, Issue 4, pp 375-376 (2013) [10.1007/s00466-012-0825-4](https://doi.org/10.1007/s00466-012-0825-4)
  23. Tavera, L., Mantic, V., Salvadori, A., Gray, L.J., Paris F., “Single-Domain Cohesive-Zone-Model Formulation and Implementation using the Symmetric Galerkin Boundary Element Method”, *Computational Mechanics*, Volume 51, Issue 4, pp 535-551 (2013)
  24. Salvadori, A., Wawrzynek, P., Ingraffea, A., “Energy dissipation in the mixed mode growth of cracks at the interface between brittle materials.” *International Journal of Fracture*: Volume 181, Issue 2 (2013), 257-271, DOI: [10.1007/s10704-013-9845-0](https://doi.org/10.1007/s10704-013-9845-0)
  25. Salvadori, A., Giacomini, A., “The most dangerous flaw orientation in brittle materials and structures”, *International Journal of Fracture*, Volume 183, Issue 1 (2013), Page 19-28, DOI:[10.1007/s10704-013-9872-x](https://doi.org/10.1007/s10704-013-9872-x)
  26. Bigoni D., Carini A., Gei M., Salvadori A., “Foreward - Special Issue Dedicated to IUTAM Symposium Fracture Phenomena in Nature and Technology 2012”, *International Journal of Fracture*, Volume 184, Issue 1 (2013), Page 1, [10.1007/s10704-013-9896-2](https://doi.org/10.1007/s10704-013-9896-2)
  27. Salvadori A., Fantoni F., Minimum theorems in 3D incremental linear elastic fracture mechanics, *International Journal of Fracture*, Volume 184, Issue 1 (2013), Page 57-74, DOI: [10.1007/s10704-013-9818-3](https://doi.org/10.1007/s10704-013-9818-3)
  28. Salvadori A., Fantoni F., Weight function theory and variational formulations for three-dimensional plane elastic cracks advancing, *International Journal of Solids and Structures*, 51 (2014) 1030–1045, DOI: [10.1016/j.ijsolstr.2013.11.029](https://doi.org/10.1016/j.ijsolstr.2013.11.029)
  29. Salvadori A., Bosco E., Grazioli D., “A computational homogenization approach for Li-ion battery cells. Part 1 - Formulation”, *Journal of the Mechanics and Physics of Solids*, 65 (2014) 114–137, DOI: [10.1016/j.jmps.2013.08.010](https://doi.org/10.1016/j.jmps.2013.08.010)
  30. Salvadori A., Fantoni F., “On a 3D crack tracking algorithm and its variational nature.”, *Journal of the European Ceramic Society* 34 (2014) 2807–2821, DOI: [10.1016/j.jeurceramsoc.2013.12.010](https://doi.org/10.1016/j.jeurceramsoc.2013.12.010)
  31. Bosco E., Kouznetsova V.G., Coenen E.W.C., Geers M.G.D., Salvadori A., “Multiscale computational homogenization-localization modelling of microscale damage towards macroscopic failure: describing non-uniform fields across discontinuity.”, *Comput Mech* (2014) 54:299–319, DOI: [10.1007/s00466-014-0986-4](https://doi.org/10.1007/s00466-014-0986-4)
  32. Salvadori A., Grazioli D., Geers M.G.D., “Governing equations for a two-scale analysis of Li-ion battery cells”, *International Journal of Solids and Structures*, 59 (2015) 90–109, DOI: [10.1016/j.ijsolstr.2015.01.014](https://doi.org/10.1016/j.ijsolstr.2015.01.014)
  33. Salvadori A., Grazioli D., Geers M.G.D., Danilov D., Notten P., A multiscale-compatible approach in modeling ionic transport in the electrolyte of (Lithium ion) batteries, *Journal of Power Sources* 293 (2015) 892-911
  34. Salvadori A., Grazioli D., Magri M., Geers M.G.D., Danilov D., Notten P., On the role of saturation in modeling ionic transport in the electrolyte of (Li-ion) batteries. *Journal of Power Sources* 294 (2015) 696-710
  35. Salvadori A., Fantoni F., Fracture propagation in brittle materials as a standard dissipative process: general theorems and crack tracking algorithms, *Journal of The Mechanics and Physics of Solids*, 95, (2016), 681–696



36. D. Nikolskiy, M. Zammarchi, S.G. Mogilevskaya, A. Salvadori, Three-dimensional BEM analysis of stress state near a crack-borehole system, *Engineering Analysis with Boundary Elements*, Volume 73, December 2016, Pages 133-143
37. Grazioli, D., Magri, M., Salvadori A., Computational modeling of Li-ion batteries, *Computational Mechanics*, Review Article December 2016, Volume 58, Issue 6, pp 889–909 2016
38. M. Zammarchi, F. Fantoni, A. Salvadori, P. Wawrzynek, High Order Boundary and Finite Elements for 3D Fracture Propagation in Brittle Materials, *Comput. Methods Appl. Mech. Engrg.* 315 (2017) 550–583
39. Salvadori A., Lee S., Gillman A., Matouš K., Shuck C., Mukasyan A., Beason M., Gunduz I.E., Son S.F., Numerical and experimental analysis of the Young's modulus of cold compacted powder materials, *Mechanics of Materials*, 112 (2017) 56–70
40. Damioli V., Ravelli C., Mitola S., Salvadori A., Beretta G.P., Chemo-mechanical-transport model of VEGFR2 driven by pro-angiogenic factors, *Scientific Reports* 7, Article number: 16700 (2017) doi:10.1038/s41598-017-16786-4

In press

41. Krairi A., Matouš K, Salvadori A., A poro-viscoplastic constitutive model for granular materials at finite strains, submitted to the *International Journal of Solids and Structures*, 2017

Under review

42. Salvadori A., McMeeking R., Grazioli D., Magri M., A coupled model of transport-reaction-mechanics with trapping. Part I - small strain analysis., submitted to the *Journal of the Mechanics and Physics of Solids*, 2017
43. Damioli V., Ravelli C., Mitola S., Salvadori A., Modeling and simulation of VEGF receptors recruitment in angiogenesis, submitted to *Mathematical Problems in Engineering*, 2017

In preparation

44. Salvadori A., Lee S., Subber W., Matouš K., Pauls J., Mukasyan A., Gunduz I.E., Son S.F., Co-Designed Simulations and Experiments of Projectile Impact Test with Uncertainty Quantification, to be submitted on *Finite Elements in Analysis and Design*,
45. Magri M., Salvadori A., McMeeking R., Grazioli, D., A multi-physics model for lithiation in Li-ion batteries electrodes, to be submitted on *Journal of Power Sources*,
46. A. Salvadori, P. Wawrzynek, Fracture propagation in brittle materials as a standard dissipative process: visco-plastic regularization, to be submitted on *Journal of The Mechanics and Physics of Solids*,
47. Salvadori A., McMeeking R., Grazioli D., Magri M., A coupled model of transport-reaction-mechanics with trapping. Part II - large strain analysis.

48. A. Salvadori, J.B. Leblond, Activation energy for fracture propagation in brittle materials
49. Damoli V., Ravelli C., Mitola S., Salvadori A., Beretta G.P., A multi-physics model of VEGFR2 redistribution on the lipid membrane
50. Salvadori A., Matouš K., A viscoplastic model for the cold compaction of granular materials at finite strains,
51. Banks-Sills L., Salvadori A., Grazioli D., Effect of heat diffusion and hydrostatic stress on mass transfer,
52. Grazioli D., Magri M., Salvadori A., Multi-physics model and FEM simulations of a Li-ion battery cell

#### International journals articles. Non ISI journals

1. Gray, L., Salvadori, A., Phan, A.V., Mantic, V.: "Direct Evaluation of Hypersingular Galerkin Surface Integrals. II" - "Electronic Journal of Boundary Elements." Vol. 4, Article 2, <http://hdl.rutgers.edu/1782.1/ejbe4.3.134>, ISSN: 1553-0124, (2006)
2. A. Salvadori, "Hypersingular formulation for boundary stress evaluation revisited. Part 1: Smooth boundaries" , "Electronic Journal of Boundary Elements." , Vol 6, No 2 (2008), 24-54
3. A. Salvadori, "Hypersingular formulation for boundary stress evaluation revisited. Part 2: Corners" , "Electronic Journal of Boundary Elements." , Vol 6, No 2 (2008), 55-84
4. A. Salvadori, "Analytical integrations in 3D BEM", Riv. Mat. Univ. Parma, Serie 7, Vol. 8, (2008), 27-68 - <http://www.math.unipr.it/~rivista/dati/2008-8/indice.html>

#### National journals articles

1. A. Salvadori, S. Modena, "Sulla determinazione della capacità portante di puntelli telescopici regolabili in acciaio in accordo alla norma UNI-EN 1065" – Costruzioni metalliche, 3, 37-47, (2005)

#### Books collection

1. A. Carini, A. Salvadori, "Implementation of a symmetric Galerkin Boundary Element Method in quasi-brittle fracture mechanics" – T. Burczynski (ed.) IUTAM/IACM/IABEM Symposium on Advanced Mathematical and Computational Mechanics Aspects of the Boundary Element Method, 63-73, (2001), Kluwer Academic Publishers
2. F. Freddi, A. Salvadori, M. Savoia - "Boundary element analysis of FRP-concrete delamination" - Boundary Elements XXVI - C. A. BREBBIA (ed.) Advances in Boundary Elements, 19, 335-346, Wessex Institute of Technology, UK (2004)
3. A. Aimi, M. Diligenti, A. Salvadori, "Restriction matrices and symmetric panel clustering method for multi-domain SGBEM" – Applied and industrial mathematics in Italy - Series on Advances in Mathematics for Applied Sciences – vol. 69 – pagg 1-12 (2005)

## **Reviewer for the International journals:**

ASME Journal of Applied Mechanics  
ASCE Journal of Engineering Mechanics  
Communications in Numerical Methods in Engineering  
Computational Mechanics  
Computer modeling in Engineering and Sciences(CMES)  
Computer and Structures  
Electronic Journal of Boundary Elements  
Engineering Fracture Mechanics  
Energy  
European Journal of Mechanics - A/Solids  
International Journal for Numerical Methods in Engineering (IJNME)  
International Journal of Solids and Structures (IJSS)  
International Journal of Fracture  
Journal of Elasticity  
Journal of Computational and Applied Mathematics (CAM)  
Journal of Computational Physics  
Journal of Material Modeling and Simulation  
Journal of Mechanics of Materials and Structures (JOMMs)  
Journal of Power Sources  
Journal of the European Ceramic Society  
Journal of the Mechanics and Physics of Solids  
Journal of sound and vibration  
Key Engineering Materials  
Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences  
Structural Durability & Health Monitoring

## **Peer reviewed conference publications**

### *Conference proceedings*

National scientific congresses proceedings or full papers:

1. A. Carini – M. Diligenti – A. Frangi – G. Novati – A. Salvadori: “Comparison between two boundary element symmetric formulations for diffusion problems” - “XIII Congresso Nazionale AIMETA” Vol. II – pp. 125-130 – (1997)
2. A. Carini – M. Diligenti – A. Salvadori: “Extremal formulations for elastic and elastic-plastic analysis by boundary integral equations ” - “XIII Congresso Nazionale AIMETA” Vol. III – pp. 189-194 – (1997)
3. A. Carini – A. Salvadori: “Symmetric Galerkin Boundary Element Method in quasi-brittle fracture mechanics” - “XIV Congresso Nazionale AIMETA” – (1999) – Atti su CD
4. A. Salvadori: “Symmetric Galerkin BEM for domains connected by cohesive interfaces: formulation and implementation” - “XIII Congresso Italiano di Meccanica Computazionale” - pp. 132-133 – (2000)
5. A. Carini, A. Salvadori, G. Sansoni: “Numerical analysis of the jaw teeth system” - “XIII Congresso Italiano di Meccanica Computazionale” - pp. 49 – (2000)

6. F. Freddi, A. Salvadori, M. Savoia, "Problemi di delaminazione FRP-calcestruzzo: uno studio via elementi di contorno" - "XVI Congresso Nazionale AIMETA"– (2003) – Atti su CD
7. A. Salvadori, C. Aliprandi, A. Feriani, "SGBEM simulations over unbounded domains" - "XVII Congresso Italiano di Meccanica Computazionale" - Genova– (2004) – Atti su CD
8. A.Salvadori, A. Carini, A. Feriani, A. Aimi, M. Diligenti, "BEM simulations over unbounded domains" - "XVII Congresso Nazionale AIMETA"– (2005) – Atti su CD
9. A. Salvadori, A.V. Phan and L. Gray "Boundary integral fracture analysis and hypersingular evaluation" - "XVII Congresso Nazionale AIMETA"– (2005) – Atti su CD
10. A.Salvadori, A. Carini, "A plasticity-like framework for fracture mechanics", - "XVIII Congresso Nazionale AIMETA"– (2007) – Atti su CD
11. A.Salvadori, A. Carini, "Ceradini's approach for fracture mechanics", - "XIX Congresso Nazionale AIMETA"– (2009) – Atti su CD
12. Temponi A., Salvadori A., Carini, A., Mordenti F., Pelizzari P.- "On the approximation of 3D hyperbolic boundary integral equations", - "XIX Congresso Nazionale AIMETA"– (2009) – Atti su CD
13. E. Bosco, A. Salvadori, E. Coenen, V. Koutznetsova, M. Geers, "Multi-scale modelling of localization and damage", - "XX Congresso Nazionale AIMETA"– (2011) – Atti su CD
14. Salvadori, A., Carini, A., "Crack kinking in brittle materials", - "XX Congresso Nazionale AIMETA"– (2011) – Atti su CD
15. Temponi A., Salvadori A., Carini, A. - "On the approximation of 3D hyperbolic boundary integral equations", - "XX Congresso Nazionale AIMETA"– (2011) – Atti su CD
16. Temponi A., Valvona F., Salvadori A., Carini, A. - "Recent advances in modeling hyperbolic problems via BEM", - "XXI Congresso Nazionale AIMETA"– (2013) – Atti su CD
17. Salvadori A., Grazioli D., Bosco E., "Multi-scale and multi-physics modelling of Li-ion batteries: a computational homogenization approach." - "XXI Congresso Nazionale AIMETA"– (2013) – Atti su CD
18. Fantoni F., Salvadori A., "Minimum theorems in 3D incremental linear elastic fracture mechanics" - "XXI Congresso Nazionale AIMETA"– (2013) – Atti su CD
19. Zammarchi, M., Fantoni, F., Salvadori, A. High Order Triangular Boundary Elements for 3D Fracture Mechanics - "XXII Congresso Nazionale AIMETA"– (2015) – Atti su CD

International scientific congresses proceedings or full papers:

1. M. Pilotti - A. Salvadori - "Analysis of the creeping flow in a three-dimensional porous medium by BEM" - "IABEM 2000 Symposium Proceedings" – pp. 183-185 – (2000)
2. A. Salvadori - "Analytical integrations in 2D BEM Elasticity" - "IABEM 2000 Symposium Proceedings" – pp. 193-195 – (2000)
3. A. Salvadori - A. Carini - "Analytical integrations in 3D BEM" - "IABEM 2000 Symposium Proceedings" – pp. 197-201 – (2000)
4. A. Salvadori, F. Freddi - "Cohesive interfaces stress analysis via boundary integral equations" - "IABEM 2002 Symposium Proceedings" – on CD – (2002)

5. A. Salvadori - "Symmetric Galerkin BEM for domains connected by cohesive interfaces" - "IABEM 2002 Symposium Proceedings" - on CD - (2002)
6. A. Aimi, M. Diligenti, F. Lunardini, A. Salvadori - "Restriction matrices for SGBEM applications" - "IABEM 2002 Symposium Proceedings" - on CD - (2002)
7. A. Salvadori, F. Freddi - "Cohesive interfaces analysis via boundary integral equations" - Proceedings of the Fifth World Congress on Computational Mechanics (WCCM V), July 7-12, 2002, Vienna, Austria, Editors: Mang, H.A.; Rammerstorfer, F.G.; Eberhardsteiner, J., Publisher: Vienna University of Technology, Austria, ISBN 3-9501554-0-6
8. A. Salvadori, F. Freddi - "Hypersingular formulation for boundary stress evaluation revisited" - "Third joint conference of Italian group of computational mechanics and ibero-latin American association of computational methods in engineering - XIV Italian congress of computational mechanics - (2002)- on CD
9. A. Salvadori, A.V. Phan and L. Gray - "Boundary integral fracture analysis and hypersingular evaluation" - Proceedings of the Eleventh International Congress of Fracture, ICF11, Turin (2005)
10. A. Salvadori - "Numerical simulations of cohesive interface problems via boundary integral equations", Proceedings of IABEM 2006, Graz (AUSTRIA) (2006)
11. Temponi, A., Salvadori, A., Bosco, E., Carini, A., Alsalaet, J. -BETEQ 9th International Conference on Boundary Element Techniques: "Analytical integrations in 3D BEM elastodynamics", pp. 55-60 (2008)
12. A. Salvadori, - Brno - 17th European Conference on Fracture (ECF17): "A plasticity-like framework for linear elastic fracture mechanics", (2008)
13. A. Salvadori - Minneapolis - Inaugural International Mechanics Institute (EM08) Conference: "A plasticity-like framework for linear elastic fracture mechanics" (2008)
14. A. Salvadori, "A plasticity-like framework for linear elastic fracture mechanics", Proceedings of the 12<sup>th</sup> International Congress of Fracture, ICF12, Ottawa (2009)
15. A. Salvadori, A.V. Phan and L. Gray, "SIF and T stress computation via boundary integral equations", Proceedings of the 12<sup>th</sup> International Congress of Fracture, ICF12, Ottawa (2009)
16. L. Távara, V. Mantič, L. Gray, F. París, A. Salvadori - : "Formulation and implementation of cohesive fracture models in the symmetric Galerkin boundary element method. Study of mode I crack growth", XXVI ENCUENTRO DEL GRUPO ESPAÑOL DE FRACTURA, Santander - Spain (2009)
17. Temponi A., Salvadori A., Carini, A., Mordenti F., Pelizzari P., Bosco, E., - BETEQ 10th International Conference on Boundary Element Techniques: "Recent developments on 3D BEM for hyperbolic problems" (2009)
18. L. Távara, V. Mantič, L. Gray, F. París, A. Salvadori - BETEQ 10th International Conference on Boundary Element Techniques: "Implementation of a symmetric boundary integral formulation for cohesive cracks in homogeneous media and at interfaces" (2009)
19. A. Salvadori, A. Carini - Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas (CIMENICS) - Invited lecture: "A variational integral formulation for fracture mechanics" (2010)
20. A. Salvadori, A. Carini - Dresden, DE - 18th European Conference on Fracture (ECF18) "A variational integral formulation for fracture mechanics" (2010)
21. Gladys M. Uzcátegui, José A. Cedeño, Miguel E. Cerrolaza, Alberto Salvadori - Buenos Aires - AR - MECOM 2010: 9th Argentinian

- congress on computational mechanics, 31<sup>th</sup> Iberian Latin American congress on computational mechanics, 2<sup>nd</sup> South American Congress on Computational Mechanics - "Distribución de esfuerzos en un modelo de implante dental por elementos finitos"
22. Temponi A., Salvadori A., Carini, A., "3D BEM FOR THE SCALAR WAVE PROBLEM", Proceedings of the 8th UK Conference on Boundary Integral Methods, University of Leeds, UK, 4-5 July 2011
  23. Salvadori, A., Wawrzynek, P., Ingraffea, A., Carini, A., Gray, L., "The mixed mode growth of brittle and interface cracks", ICM11, Como, June 5-9 2011
  24. Salvadori, A., Gray, L.J., and Phan, A.V., "Fast and accurate approximation of derivatives at the boundary via integral equations.", Proceedings of IABEM 2011, Brescia, Italy, 2011
  25. A. Salvadori, A. Carini, "A variational integral formulation for fracture mechanics", Proceedings of IABEM 2011, Brescia, Italy, 2011
  26. A. Salvadori, "The critical size of micro and nano-structures against the most dangerous defect.", Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas (CIMENICS) - Invited lecture, Isla Margarida, Venezuela, 2012
  27. Temponi A., Valvona F., Salvadori A., "Boundary element method for acoustics and elastodynamics: recent advances", Proceedings of the 9th UK Conference on Boundary Integral Methods, University of Birmingham, UK, July 2013
  28. Temponi A., Valvona F., Salvadori A., Carini, A., "Boundary element method for hyperbolic problems: recent advances", Proceedings of the BETEQ 14th International Conference on Boundary Element Techniques, July 2013
  29. Salvadori A., Bosco E., Grazioli D., FORMULATION OF A COMPUTATIONAL HOMOGENIZATION APPROACH FOR MULTI-SCALE AND MULTI-PHYSICS MODELING OF LI-ION BATTERY CELLS, 6th ECCOMAS Conference on Smart Structures and Materials, SMART2013, Torino, June 2013
  30. Francesca Fantoni, Alberto Salvadori, Three Dimensional Fracture Growth as a Standard Dissipative System: Some General Theorems and Numerical Simulations, Procedia Materials Science, Volume 3, 2014, Pages 2054-2059, ISSN 2211-8128, <http://dx.doi.org/10.1016/j.mspro.2014.06.332>.
  31. W.Subber, K. Matous, A. Salvadori, S.Lee, "Uncertainty Quantification of the Reverse Taylor Impact Test and Localized Asynchronous Space-Time Algorithm", Conference Proceedings of the 20th Biennial Conference of the APS Topical Group on Shock Compression of Condensed Matter, 2017

## Other publications

### *Educational publications:*

1. Salvadori, A. - Appunti di Scienza delle Costruzioni, edizioni Snoopy, 2003. – Dispense del corso di Scienza delle Costruzioni, per allievi meccanici e materiali N.O..
2. Salvadori, A. - Appunti di Scienza delle Costruzioni, edizioni Snoopy, II edizione, 2004. – Dispense del corso di Scienza delle Costruzioni, per allievi meccanici e materiali N.O..

3. Salvadori, A. - ESERCIZI DI SCIENZA DELLE COSTRUZIONI CON UNA BREVE PRESENTAZIONE TEORICA. PARTE 1, TEORIA DELLE TRAVI PIANE, edizioni Snoopy, I edizione, 2010 - Dispense del corso di Scienza delle Costruzioni.

*PhD thesis:*

A. Salvadori: "Quasi brittle fracture mechanics by cohesive crack models and symmetric Galerkin Boundary Element Method", advisors Proff. A. Carini e P.B. Shing, Politecnico di Milano, December 1999

*Technical reports:*

1. Salvadori, A. "Extended Functionals and Approximation Schemes for Non-Potential Operators. Part I: A Unified View and Some New Results.", Quaderno #42 del seminario matematico di Brescia – 2002 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
2. Salvadori, A., L. Bardella, F. Genna, "Extended Functionals and Approximation Schemes for Non-Potential Operators. Part II: Variational Nature of Some Time Integration Algorithms.", Quaderno #43 del seminario matematico di Brescia – 2002 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
3. A. Salvadori, P.B.Shing, A. Marini: "An elasto-plastic-damage interface model for quasi brittle materials" Technical report N.4 – 2002 – Università degli studi di Brescia
4. A. Salvadori, A. Feriani, C. Aliprandi: "Formulation and implementation of hypersingular infinite boundary elements for soil-structure interaction problems" Technical report N.15 – 2004 – Università degli studi di Brescia
5. A. Salvadori, A. Carini: "Variational formulation of cohesive fracture mechanics by boundary integral equations" Technical report N.20 – 2004 – Università degli studi di Brescia
6. Salvadori, A.: "Analytical integrations in 2D BEM fracture mechanics" Quaderno #30 del seminario matematico di Brescia – 2005 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
7. A. Salvadori, "Hypersingular formulation for boundary stress evaluation revisited. Part 1: Smooth boundaries" Technical report N.4 – 2006 – Università degli studi di Brescia
8. A. Salvadori, "Hypersingular formulation for boundary stress evaluation revisited. Part 2: Corners" Technical report N.5 – 2006 – Università degli studi di Brescia
9. A. Salvadori, "Hypersingular boundary integral equations and the approximation of the stress tensor", Quaderno #7 del seminario matematico di Brescia – 2006 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
10. A. Salvadori, A. Carini, P.Pelizzari, "A comparison among crack propagation criteria for brittle materials" Technical report N.3 – 2007 – Università degli studi di Brescia
11. Salvadori, A.: "A plasticity framework for 2D linear elastic fracture mechanics" Quaderno #5 del seminario matematico di Brescia – 2007 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
12. Salvadori, A.: "Analytical integrations in 3D BEM for elliptic problems: evaluation and implementation" Quaderno #10 del seminario matematico

- di Brescia – 2008 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
13. Salvadori, A., Gray, L.J., Pizzocolo, F.: The evaluation of derivatives at boundary and the Helmholtz decomposition for BIEs Quaderno #12 del seminario matematico di Brescia – 2008 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  14. J. Alsalaet, E. Bosco, A. Carini, F. Mordenti, A. Salvadori, A. Temponi: “Analytical integrations in 3D BEM for hyperbolic problems on rectangular panels” Quaderno #21 del seminario matematico di Brescia – 2008 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  15. A. Salvadori, A. Temponi, F. Mordenti: “Analytical integrations for the approximation of 3D hyperbolic scalar boundary integral equations” Quaderno #11 del seminario matematico di Brescia – 2009 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  16. A. Salvadori, E. Marchina: “Ultimate strength of adjustable telescopic steel props according to standard EN 1065” Technical report N.4 – 2009 – Università degli studi di Brescia
  17. A. Salvadori, “An analysis of crack propagation criteria” Quaderno #24 del seminario matematico di Brescia – 2009 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  18. A. Salvadori, A. Carini, “Minimum theorems in incremental linear elastic fracture mechanics” Quaderno #3 del seminario matematico di Brescia – 2010 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  19. A. Salvadori, “On the crack kinking in brittle materials” Quaderno #9 del seminario matematico di Brescia – 2010 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  20. A. Salvadori, P. Wawrzyniek, A. Ingrassia, A. Carini, L. Gray, “On the mixed mode growth of brittle and interface cracks” Quaderno #16 del seminario matematico di Brescia – 2010 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  21. Salvadori A., Bosco E., Grazioli D., “A computational homogenization approach for Li-ion battery cells. Part 1 - Formulation”, Quaderno #21 del seminario matematico di Brescia – 2012 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  22. Salvadori A., Fantoni F., “Weight function theory and variational formulations for three-dimensional plane elastic cracks advancing.”, Quaderno #6 del seminario matematico di Brescia – 2013 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  23. A. Salvadori, A. Temponi, “Approximation of 3D hyperbolic problems via BEM and analytical integrations in time and space” Quaderno #29 del seminario matematico di Brescia – 2013 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  24. Salvadori A., Grazioli D., Geers M.G.D., “Governing equations for a two-scale analysis of Li-ion battery cells” Quaderno #14 del seminario matematico di Brescia – 2014 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)
  25. Salvadori A., Grazioli D., Magri M., Geers M.G.D., danilov D., Notten P.H.L., “A novel approach in modeling ionic transport in the electrolyte of (Li-ion) batteries.” Quaderno #24 del seminario matematico di Brescia – 2014 (downloadable at the web page: <http://www.dmf.bs.unicatt.it/~semmat/preprints>)





## Honors and awards

### *Awards, grants*

1. 2016, Spanish Ministry of Economy and Competitiveness), and The European Regional Development Fund (ERDF). New approaches in computational fracture mechanics to characterize crack initiation and propagation in composites at different scales. Acronym: COMPFRAC.
2. 2016, University of Notre Dame FY2016 FRSP Initiation Grant Program “BatterieX: Experiments, modeling, simulations towards the design of batteries under extreme conditions”.
3. 2013, Junta de Andalucía visiting award “Cohesive interface fracture mechanics and boundary integral equations towards modeling of multiscale damage in composites”
4. 2012, Intra-European Fellowships (IEF) Call: FP7-PEOPLE-2011-IEF, Mechanics of Energy Storage: Swelling and Fracturing in Lithium Batteries electrodes during Charging/Discharging Cycles (LiSF)
5. 2012, CARIPO – UniBs – MITMechE Faculty Exchange Program, visiting scholar award “Mechanics of Energy Storage Materials: crack nucleation and propagation due to diffusion of species in Li-ion battery electrodes and hydrogen embrittlement in metals.”
6. 2011, CARIPO – UniBs – MITMechE Faculty Exchange Program, visiting scholar award “Mechanics of Energy Storage: Swelling and Fracturing in Lithium Batteries electrodes during Charging/Discharging Cycles”

### *Tutoring awards*

1. Davide Grazioli, Best computational Italian Ph.D. thesis 2016 award, GIMC - Italian Group of Computational Mechanics, 2016.

## Fellowships

### *Visiting student*

1. University of Colorado at Boulder, CO, USA, - Aug. 1998 – Feb. 1999
2. University of Colorado at Boulder, CO, USA, invited by Prof. P.B. Shing - Aug. 1999

### *Visiting researcher*

1. Oak Ridge National Laboratory, TN, USA, invited by Prof. L.J. Gray – June 2002
2. University of Colorado at Boulder, CO, USA, invited by Prof. P.B. Shing – June 2002
3. Oak Ridge National Laboratory, TN, USA, invited by Prof. L.J. Gray – August 2003
4. University of Colorado at Boulder, CO, USA, invited by Prof. P.B. Shing and Prof. K. Willam - August 2003
5. Universidad De Sevilla, Spain, invited by Prof. V. Mantic - September 2004
6. Oak Ridge National Laboratory, TN, USA, invited by Prof. L.J. Gray – January 2007-June 2007

7. Oak Ridge National Laboratory, TN, USA, invited by Prof. L.J. Gray – February 2008-August 2008
8. Oak Ridge National Laboratory, TN, USA, invited by Prof. L.J. Gray – February 2009-August 2009
9. Universidad De Sevilla, Spain, invited by Prof. V. Mantic - December 2009
10. Universidad De Sevilla, Spain, invited by Prof. V. Mantic - March 2010
11. Cornell University, USA, invited by Proff. T. Ingraffea and P. Wawrzynek – June 2010
12. Oak Ridge National Laboratory, TN, USA, invited by Prof. L.J. Gray – April 2010-August 2010
13. Oak Ridge National Laboratory, TN, USA, invited by Prof. L.J. Gray – March 2011
14. Universitaet Saarlandes, invited by Prof. S. Rjasanow – May 2011
15. MIT - Boston, see 2011, CARIPLO – UniBs – MITMechE Faculty Exchange Program award - July-August 2011
16. MIT - Boston, see 2012, CARIPLO – UniBs – MITMechE Faculty Exchange Program award - June-August 2012
17. Universidad De Sevilla, Spain, Junta de Andalucia visiting award invited by Prof. V. Mantic - March 2013

## Appointments

1. 2011 – 2013: One of the five executives in the board of the International Association for Boundary Element Methods (IABEM), [www.iabem.org](http://www.iabem.org)
2. 2010 - presently: Vice President of the Scientific Association “O. De Donato”, Brescia
3. 2006 – presently: SECRETARY OF Ce.Si.A - Applied Seismology and Structural Dynamics research Center – University of Brescia, Italy
4. 2002 – presently: Research group delegate in the Research center CESCAM (Centro studi città amica), University of Brescia

## Hosting

1. 2016 - Hosting a 2 months sabbatical period for Prof. L. Banks-Sills, Tel Aviv University, Israel
2. 2015 - Hosting a 2 months sabbatical period for Prof. L. Banks-Sills, Tel Aviv University, Israel
3. 2013 - Hosting a 4 months sabbatical period for Prof. J. Berger, Colorado School of Mines, Colorado, USA
4. 2009 - Hosting a 6 months visit period for Dr. L. Tavara, Universidad de Sevilla, Spain

## Memberships

1. 2009 – presently: Member of the Italian Group of Fracture (IGF)
2. 2009 – presently: Member of ESIS (European Structural Integrity Society)
3. 2007 – presently: Member of The Engineering Mechanics Institute of ASCE
4. 2000 – presently: Member of the Italian Group of Computational Mechanics (GIMC)
5. 2000 – presently: Member of the Italian Association of Theoretical and Applied Mechanics (AIMETA)

6. 2014 - presently: Member of EUROMECH, # EM 140278
7. 2017 - Member of INdAM, Gruppo Nazionale per la Fisica Matematica, Sezione: Meccanica dei continui solidi

## Congresses organization

### *Chairman or Co-chairman*

1. International Workshop "Advances in the mechanical modeling of materials and structures", Brescia, June 2015
2. IUTAM Symposium "Fracture in nature and technology", Brescia 2012
3. IABEM 2011, Brescia, September 2011
4. CeSiA International workshop: "Advanced numerical methods in seismology", Brescia, November 2008

### *International Scientific Advisory Board*

1. BETEQ 2007 - Boundary Element Techniques conference, Naples, Italy 24-26 July 2007
2. BETEQ 2008 - Boundary Element Techniques conference, Seville, Spain 9-11 July 2008
3. BETEQ 2009 - Boundary Element Techniques conference, Athens, Greek, 22-24 July 2009
4. BETEQ 2010 - Boundary Element Techniques conference, Berlin, Germany, 12-14 July 2010
5. IUTAM Symposium "Fracture in nature and technology", Brescia 2012
6. IABEM 2013, Santiago de Chile, January 2013

### *Congresses and workshop organization and/or committee memberships*

1. Brescia – July 2000 – International congress IABEM<sup>1</sup> 2000
2. Brescia – November 2000 – National congress GIMC<sup>2</sup> 2000
3. Brescia – December 2006 – National workshop: Il rischio sismico nella lombardia orientale.
4. Brescia – September 2007 – National congress AIMETA<sup>3</sup> 2007
7. Salò – December 2007 – National workshop: "Il dopo-terremoto della Val Sabbia e del Garda: fra esigenze di tutela e requisiti di sicurezza."
8. Parma – October 2009 – International workshop: "Integral equations: recent numerical developments and new applications"
9. Salò – November 2009 – National workshop: "Tecniche innovative per la protezione sismica di edifici strategici e pubblici"
10. Brescia – November 2010 - National workshop: "Rischio sismico nella Pianura Padana"

### *Simposia organization and/or committee memberships*

- 
- 1 International Association Boundary Element Methods
  - 2 Gruppo Italiano di Meccanica Computazionale
  - 3 Italian Association for Theoretical and Applied Mechanics

1. Brown University – July 2013 – SES 50th Annual Technical Meeting and ASME-AMD Annual Summer Meeting (July 28 - 31, 2013) - Simposia “Crack initiation and growth: methods, applications, and challenges.”
2. 16th International Conference on Fracture and Damage Mechanics Florence, Italy 18-20 July, 2017 - Special session on “Microstructural & Micromechanical Modelling”
3. Bologna - 2-6 July 2018 - European Solid Mechanics Conference - Simposia “Mechanics in energy harvesting and storage”
4. Glasgow - 11-15 June 2018 - ECCM\_ECFD2018 “Computational mechanics for energy harvesting and storage”

## **Invited seminars and lectures**

*Invited lectures or keynote speaker at international scientific congresses:*

1. 2006 - International Conference “Mathematical Modeling and Computational Physics” (MMCP 2006), organized by the Laboratory of Information Technologies, Joint Institute for Nuclear Research, Dubna, Russia, the Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovakia, and the Technical University, Kosice, Slovakia, held in High Tatra Mountains (Slovakia) - Invited lecture: NUMERICAL SIMULATIONS OF COHESIVE INTERFACE PROBLEMS VIA BOUNDARY INTEGRAL EQUATIONS
2. 2008 – International workshop “BEM/FEM techniques for time dependent and time harmonic problems”, May 26-29, 2008, University of Saarland, Saarbruecken, Germany. Invited lecture: ON ANALYTICAL INTEGRATIONS AND TIME MARCHING SCHEMES IN 3D BEM ELASTODYNAMICS
3. 2008 – International workshop: “Advanced numerical methods in seismology” - Invited lecture: BOUNDARY ELEMENT METHODS FOR EARTHQUAKE SIMULATIONS: AN INTRODUCTION
4. 2010 – Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas (CIMENICS), March 22-24, 2010 , Merida, Venezuela - “A variational integral formulation for fracture mechanics”
5. 2011 - 8TH MIT workshop on experimental and computational fracture mechanics, IMPACT AND CRASHWORTHINESS LAB, MIT, Boston, USA, 7-8 October 2011 - Invited lecture: Failure of Electrodes under Charge and Discharge Cycles
6. 2011 - 4th International Workshop of Young Researchers on the Mechanics of Materials and Structures, School and international workshop SISSA - International School for Advanced Studies, 10-12 October 2011- Invited lecture: “Fracturing process as a standard dissipative system: some recent developments”
7. 2012 – Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas (CIMENICS), March 26-30, 2012 , Margarita Island, Venezuela - Invited lecture: “Recent developments in multiscale fracture mechanics problems”
8. 2012 - University of Minnesota, NSF Workshop: Boundary Element Method: Bridging Education and Industrial Applications - Invited lecture: Fracture analysis with BEM
9. 2012 - 9TH MIT workshop on experimental and computational fracture mechanics, IMPACT AND CRASHWORTHINESS LAB, MIT, Boston, USA,

- 8-9 October 2011 - Invited lecture: Multi-scale modeling of charging/discharging processes in Li-ion batteries
10. 2014 - November 21 - University of Minnesota, Minneapolis - Warren Lecture Series 2014-2015 - "Multi-scale and Multi-physics Modeling of Li-ion Battery Cells"

*Invited seminars:*

1. Università degli Studi di Parma – May 2001 – "Boundary element method and hyper singular integral equations"
2. Università degli Studi di Parma – March 2002 – "The panel clustering technique for hypersingular BIEs"
3. Università degli Studi di Brescia – July 2002 – "A short introduction to the boundary element method"
4. Universidad De Sevilla, September 2004 – "Cohesive fracture mechanics via boundary element method"
5. Wessex Institute of Technology, March 2005 – "Cohesive fracture mechanics via boundary element method"
6. Cornell university, Ithaca, New York State, USA – T&AM SEMINAR SERIES – Spring 2007 - April 2007 - "A plasticity framework for fracture mechanics"
7. Imperial college, London, GB – January 2008 - "Some issues on fracture mechanics and crack advancing.."
8. University of Salerno, Salerno, Italy – February 2008 - "Some issues on fracture mechanics and crack advancing."
9. University of Mobile, Alabama, USA – March 2008 - "On some basic issues on fracture mechanics and boundary integral equations."
10. Brown University, Providence, USA – April 2008 - "Some issues on fracture mechanics and crack advancing."
11. Universidad De Sevilla, December 2008 – "Some issues on fracture mechanics and crack advancing."
12. Cookeville Tennessee Tech University, April 2009 - "Modern trend in fracture mechanics: an overview"
13. Cornell University, Ithaca, New York State, USA – CFG SEMINAR SERIES – July 2009 - "A plasticity-like framework for linear elastic fracture mechanics"
14. Carnegie Mellon University, Pittsburgh, Pennsylvania, USA – July 2009 - "A plasticity-like framework for linear elastic fracture mechanics"
15. University of Mobile, Alabama, USA – April 2010 - "Variational formulations in linear elastic fracture mechanics."
16. Vanderbilt University, TN,USA – May 2010 - Civil & Environmental Engineering Special Lecture - "The mechanics of a brittle crack kinking"
17. CIMNE, Barcelona, Spain - May 2011 - "Quasi-brittle fracture mechanics via Boundary Element methods"
18. Universitaet des Saarlandes, Germany - May 2011 - "Quasi-brittle fracture mechanics via Boundary Element methods"
19. Oak Ridge National Laboratory, Tennessee, USA – August 2013 - "Multi-scale and multi-physics modeling of Li-ion batteries: a computational homogenization approach."
20. TU/e Eindhoven, The Netherlands - September 2013 - "Advances and challenges in brittle fracture and in Li-ion batteries modeling"
21. Helmholtz Institute ULM, Germany- July 2015 - "Multi-scale and multi-physics modeling of Li-ion batteries"

22. University of Luxembourg, Luxembourg- July 2016 - “Three dimensional fracture growth in coupled transport-reaction-mechanics dissipative systems: from general theorems to 3D crack tracking algorithms”
23. Cornell university, Ithaca, New York State, USA – T&AM SEMINAR SERIES – Fall 2016 - “Three dimensional fracture growth in coupled transport-reaction-mechanics dissipative systems”
24. Colorado school of mines, Golden, Colorado - 28 Nov. 2016 - “Recent Advances in the Multiscale Mechanics and Multiphysics of Materials”
25. University of Notre Dame, Notre Dame, Indiana, USA - 6 March 2017 - “Recent Advances in the Multiscale Mechanics and Multiphysics of Materials”
26. SISSA - Scuola Internazionale Superiore di Studi Avanzati, 21 September 2017- Invited seminar: “Fracture propagation in brittle materials as a standard dissipative process: general theorems and crack tracking algorithms.”

## **Presentations at congresses**

*International scientific congresses, workshops abstracts and presentations:*

1. Parigi – May 1998 – IABEM 1998 : “Some results on analytical and numerical integration in 3D Galerkin BEM solution of HBIEs”
2. Krakow - May 1999 – IUTAM-IACM-IABEM 1999 : “Implementation of a symmetric Galerkin Boundary Element Method in quasi-brittle fracture mechanics”
3. Boulder - August 1999 – USNCCM99: “An elastic plastic cohesive interface model for fracture of concrete”
4. Boulder - August 1999 – USNCCM99 : “Extremal formulations for elastic-plastic analysis by boundary integral equations ”
5. Brescia - July 2000 – IABEM 2000 : “Analysis of the creeping flow in a three-dimensional porous medium by BEM”
6. Brescia - July 2000 – IABEM 2000 : “Analytical integrations in 2D BEM Elasticity”
7. Brescia - July 2000 – IABEM 2000 : “Analytical integrations in 3D BEM”
8. Austin (TEXAS) - May 2002 - IABEM 2002 : “Cohesive interfaces stress analysis via boundary integral equations”
9. Austin (TEXAS) - May 2002 - IABEM 2002 : “Symmetric Galerkin BEM for domains connected by cohesive interfaces”
10. Austin (TEXAS) - May 2002 - IABEM 2002 : “Restriction matrices for SGBEM applications”
11. Giulianova - June 2002 - “Third joint conference of Italian group of computational mechanics and ibero-latin American association of computational methods in engineering - XIV Italian congress of computational mechanics : “Hypersingular boundary stress evaluation revisited”
12. Vienna - July 2002 - WCCM V Fifth World Congress on Computational Mechanics : “Cohesive interfaces analysis via boundary integral equations”
13. Albuquerque – USA - Sandia National Laboratory - July 2003 – USNCCM03 : “On the implementation of symmetric Galerkin BEM for domains connected by cohesive interfaces”

14. Bologna – BEM 26 26th World Conference on Boundary Elements and other Mesh Reduction Methods : “Boundary element analysis of FRP-concrete delamination”
15. Minneapolis (MINNESOTA) - May 2004 - IABEM 2004 : “Numerical simulations of cohesive interface problems via boundary integral equations”
16. Turin (ITALY) – 2005 - 11th International Conference on Fracture : “Boundary integral fracture analysis and hypersingular evaluation”.
17. Parma (ITALY) – Crack Path 2006 : “Boundary integral crack propagation analysis”.
18. Graz (AUSTRIA) - IABEM 2006 : “Numerical simulations of cohesive interface problems via boundary integral equations”
19. Parigi – 2006 -BETEQ 7th International Conference on Boundary Element Techniques: “Infinite Boundary Elements In 2D Elasticity”
20. Parigi – 2006 -BETEQ 7th International Conference on Boundary Element Techniques: “On crack propagation analysis via SGBEM.”
21. High Tatra Mountains (Slovakia) - 2006 - International Conference “Mathematical Modeling and Computational Physics” (MMCP 2006) - Invited lecture: NUMERICAL SIMULATIONS OF COHESIVE INTERFACE PROBLEMS VIA BOUNDARY INTEGRAL EQUATIONS
22. Napoli – 2007 -BETEQ 8th International Conference on Boundary Element Techniques: “Analytical integrations in 3D elasticity.”
23. Napoli – 2007 -BETEQ 8th International Conference on Boundary Element Techniques: “Crack propagation algorithms via SGBEM.”
24. Soellerhaus Workshop 2007 - Fast Boundary Element Methods in Industrial Applications - “Issues on fracture mechanics and boundary integral equations.”
25. Sevilla – 2008 -BETEQ 9th International Conference on Boundary Element Techniques: “Analytical integrations in 3D BEM elastodynamics”
26. Brno – 2008 - 17th European Conference on Fracture (ECF17): “A plasticity-like framework for linear elastic fracture mechanics”
27. Minneapolis – 2008 - Inaugural International Mechanics Institute (EM08) Conference: “A plasticity-like framework for linear elastic fracture mechanics”
28. Minneapolis – 2008 - Inaugural International Mechanics Institute (EM08) Conference: “Analytical integrations in 3D BEM ”
29. Soellerhaus Workshop 2008 - Workshop “Fast Boundary Element Methods in Industrial Applications” - “Analytical integrations in 3D BEM for transient problems and elastodynamics”
30. Saarbruecken - 2008 – International workshop “BEM/FEM techniques for time dependent and time harmonic problems”, May 26-29, 2008, University of Saarland, Saarbruecken, Germany – Invited Lecture: “On analytical integrations and time marching schemes in 3D BEM elastodynamics”
31. Ottawa – 2009 - 12<sup>th</sup> International Conference on Fracture (ICF 12) - “SIF and T stress computation via boundary integral equations”
32. Ottawa – 2009 - 12<sup>th</sup> International Conference on Fracture (ICF 12) - “A plasticity-like framework for linear elastic fracture mechanics”
33. Athens - 2009 -BETEQ 10th International Conference on Boundary Element Techniques: “Implementation of a symmetric boundary integral formulation for cohesive cracks in homogeneous media and at interfaces”
34. Athens - 2009 -BETEQ 10th International Conference on Boundary Element Techniques: “Recent developments on 3D BEM for hyperbolic problems”



35. Santander – 2009 - XXVI ENCUESTRO DEL GRUPO ESPAÑOL DE FRACTURA : “Formulation and implementation of cohesive fracture models in the symmetric Galerkin boundary element method. Study of mode I crack growth”
36. Alba di Canazei – 2009 - “Recent developments on 3D BEM for hyperbolic problems”- DWCAA 2009 - 2nd DOLOMITES WORKSHOP ON CONSTRUCTIVE APPROXIMATION AND APPLICATIONS
37. Columbus, Ohio – USA - July 2009 – USNCCM09 : “SGBEM-Based Multiscale Analysis of Dynamic Stress Intensity Factors and T-Stress”, Anh-Vu Phan, Alberto Salvadori, Len J. Gray
38. Soellerhaus Workshop 2009 - Workshop “Fast Boundary Element Methods in Industrial Applications” - “A variational integral formulation for fracture mechanics”
39. Parma – October 2009 – Workshop: Equazioni Integrali: recenti sviluppi numerici e nuove applicazioni – “SIF and T stress computation via boundary integral equations”
40. Merida – March 2010 – Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas (CIMENICS) - Invited lecture: “A variational integral formulation for fracture mechanics”
41. Paris – May 2010 - Eccomas - “An exact boundary integral formula for determining the T-stress for cracks of arbitrary geometry”, Anh-Vu Phan, Alberto Salvadori, Len J. Gray
42. Dresden – September 2010 – ECF18 - “Variational formulations in fracture mechanics due to plasticity analogies”, A. Salvadori, A. Carini
43. Leeds – July 2011 – UKBIM Eighth UK Conference on Boundary Integral Methods: “3D BEM for the scalar wave problem”
44. Como – June 2011 – ICM 11 – international congress on the mechanical behavior of materials - “A damage-elastic-plastic cohesive interface model”
45. Como – June 2011 – ICM 11 – international congress on the mechanical behavior of materials - “On the mixed mode growth of brittle and interface cracks.”
46. Brescia - September 2011 - IABEM 2011 - “3D BEM for the scalar wave problem”
47. Brescia - September 2011 - IABEM 2011 - “Numerical simulations of cohesive interface problems via boundary integral equations”
48. Brescia - September 2011 - IABEM 2011 - “Fast and accurate approximation of derivatives at the boundary via integral equations”
49. Brescia - September 2011 - IABEM 2011 - “A variational integral formulation for crack propagation in brittle solids”
50. Boston, USA, 7-8 October 2011 - 8TH MIT workshop on experimental and computational fracture mechanics, IMPACT AND CRASHWORTHINESS LAB, MIT, Boston, USA, Invited lecture: Failure of Electrodes under Charge and Discharge Cycles
51. Isla Margarida – March 2012 – Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas (CIMENICS) - Invited lecture: The critical size of micro and nano-structures against the most dangerous defect.
52. Brescia - July 2012 - IUTAM symposium “Fracture phenomena in nature and technology” - “Minimum theorems in 3D incremental linear elastic fracture mechanics”
53. Vienna - September 2012 - ECCOMAS 2012 - “Multiscale modelling of localization and damage through computational homogenization”
54. Boston, USA, 7-8 October 2012 - 9TH MIT workshop on experimental and computational fracture mechanics, IMPACT AND

- CRASHWORTHINESS LAB, MIT, Invited lecture: Multi-scale modeling of charging/discharging processes in Li-ion batteries
55. Houston - November 2012 - ASME-IMECE 2012 - "A computational homogenization approach for multiscale modelling of Li-ion batteries."
  56. Santiago de Chile - January 2013 - IABEM 2013 - "RECENT ADVANCES IN MODELING TIME DEPENDENT PROBLEMS VIA BOUNDARY ELEMENTS"
  57. Como - May 2013 - Int. workshop "Batteries for the future" - "Multi-scale and multi-physics modeling of Li-ion batteries: a computational homogenization approach"
  58. Torino - June 2013 - SMART'13. - Special Session on Multiphysics and multiscale modelling of composites for renewable energy applications "FORMULATION OF A COMPUTATIONAL HOMOGENIZATION APPROACH FOR MULTI-SCALE AND MULTI-PHYSICS MODELING OF LI-ION BATTERY CELLS."
  59. Beijing - June 2013 - 13th International Conference on Fracture (ICF13) - "Crack Kinking in brittle materials"
  60. Beijing - June 2013 - 13th International Conference on Fracture (ICF13) - "Fracturing process as a standard dissipative system: some recent developments in 3D crack growth."
  61. Prague - June 2013 - CFRAC 2013 - "Crack Kinking in brittle materials"
  62. Prague - June 2013 - CFRAC 2013 - "Fracturing process as a standard dissipative system: some recent developments in 3D crack growth."
  63. Birmingham - July 2013 - UKBIM Eighth UK Conference on Boundary Integral Methods: "Boundary element method for acoustics and elastodynamics: recent advances"
  64. Paris - July 2013 - BETEQ 2013 - "Boundary element method for hyperbolic problems: recent advances"
  65. Trento - July 2013 - CERMODEL 2013 - "Three dimensional fracture growth as a standard dissipative system: some general theorems and preliminary numerical analysis."
  66. Providence, USA - July 2013 - SES 2013 / ASME-AMD Technical Meeting - "Three dimensional fracture growth as a standard dissipative system: some general theorems and preliminary numerical analysis."
  67. Providence, USA - July 2013 - SES 2013 / ASME-AMD Technical Meeting - "Multi-scale and multi-physics modelling of Li-ion batteries: a computational homogenization approach."
  68. Como, Italy - 17th International Meeting on Lithium Batteries (June 10-14, 2014) - "A Multi-Scale Computational Homogenization Formulation for Li-ion Battery Cells"
  69. Trondheim, Norway - July 2014 - 20th European Conference on Fracture (ECF20) - "Attempts to model crack growth driven by diffusion of species in solids"
  70. Trondheim, Norway - July 2014 - 20th European Conference on Fracture (ECF20) - "Energy dissipation in the mixed mode growth of cracks at the interface between brittle materials."
  71. Trondheim, Norway - July 2014 - 20th European Conference on Fracture (ECF20) - "The most dangerous flaw orientation in brittle materials and structures"
  72. Trondheim, Norway - July 2014 - 20th European Conference on Fracture (ECF20) - "Three dimensional fracture growth as a standard dissipative system: some general theorems and numerical simulations."
  73. Barcelona, Spain - July 2014 - 11th World Conference on Computational Mechanics (WCCM11) - "Three dimensional fracture growth as a standard dissipative system: some general theorems and numerical simulations."

74. Barcelona, Spain - July 2014 - 11th World Conference on Computational Mechanics (WCCM11) - "Attempts to model crack growth driven by diffusion of species in solids."
75. Barcelona, Spain - July 2014 - 11th World Conference on Computational Mechanics (WCCM11) - "AN ELECTRONEUTRAL COMPUTATIONAL HOMOGENIZATION FORMULATION FOR LI-ION BATTERY CELLS."
76. Barcelona, Spain - July 2014 - 11th World Conference on Computational Mechanics (WCCM11) - "PRELIMINARY NUMERICAL ANALYSIS RELEVANT TO AN ELECTRONEUTRAL COMPUTATIONAL HOMOGENIZATION FORMULATION FOR LI-ION BATTERY CELLS."
77. Aberdeen, Scotland - July 2014 - 1st International Symposium on Energy Challenges and Mechanics - "AN ELECTRONEUTRAL COMPUTATIONAL HOMOGENIZATION FORMULATION FOR LI-ION BATTERY CELLS."
78. Aberdeen, Scotland - July 2014 - 1st International Symposium on Energy Challenges and Mechanics - "PRELIMINARY NUMERICAL ANALYSIS RELEVANT TO AN ELECTRONEUTRAL COMPUTATIONAL HOMOGENIZATION FORMULATION FOR LI-ION BATTERY CELLS."
79. Gothenburg August 27-29, 2014 - EMMC14 - European Mechanics of Materials Conference 2014 - "Multi-scale and Multi-physics Modeling of Li-ion Battery Cells"
80. Parma, Italy - 21/24 September 2014 - First ESG congress - Fracture growth modelled as a standard dissipative system: weight function theory revisited towards simulations and applications.
81. Madrid, Spain, 24th International Workshop on Computational Micromechanics of Materials (IWCM24) October 1 - 3, 2014 - Multiscale modeling of multiphysics processes in Li-ion battery cells.
82. A. Salvadori, D. Grazioli, M. Magri, M. G.D. Geers, "A two-scale analysis of Li-ion battery cells" - Eindhoven, The Netherlands, Euromech 559 Multi-scale computational methods for bridging scales in materials and structures - Feb. 23-25, 2015
83. D. Grazioli, A. Salvadori, M. Magri, M. G.D. Geers, and A. F. Bower, "On the Modeling of Multi-physics Processes in Lithium Ion Battery Cells" ESMC2015 Madrid, Spain, July 6-10, 2015
84. D. Grazioli, A. Salvadori, M. Magri, M. G.D. Geers, and A. F. Bower, "Modeling the Multiphysics Processes in Lithium Ion Battery Cells within a Computational Homogenization Framework" - VI Coupled Problems in Science and Engineering 2015 - May 18-20, 2015 Venice, Italy,
85. A. Salvadori, F. Fantoni, P. Wawrzynek, V. Mantic, A. Saendig "Advances in 3D crack tracking algorithms for brittle materials" Trento - July 2015 - CERMODEL 2015
86. Salvadori A., Lee S., Matous, K., "Image-based Multi-scale Modeling of High-Energy Ball Milled Composites." - Society of Engineering Science (SES) Technical Meeting, October 26-28, 2015 at Texas A&M University
87. Lee S., Salvadori A., Matous, K., "Image based numerical modeling of high-energy ball milled inter-metallic systems" - Society of Engineering Science (SES) Technical Meeting, October 26-28, 2015 at Texas A&M University
88. D. Grazioli, A. Salvadori, M. Magri, M. G.D. Geers, and A. F. Bower, "On the Multi-scale Modeling of Multi-physics Processes in Lithium Ion Battery Cells." - Society of Engineering Science (SES) Technical Meeting, October 26-28, 2015 at Texas A&M University
89. A. Salvadori, F. Fantoni, P. Wawrzynek, "Three dimensional fracture growth as a standard dissipative system: from general theorems to 3D crack tracking algorithms." - Society of Engineering Science (SES) Technical Meeting, October 26-28, 2015 at Texas A&M University

90. M. Magri, D. Grazioli, A. Salvadori, "Multi-scale Modeling of Multi-physics Processes in Lithium Ion Battery Cells.", ECCOMAS Congress 2016, 5 - 10 JUNE 2016 Crete Island, Greece
91. Salvadori A., Lee S., and Matous, K., Image-based Multi-scale Modeling and Simulations of High Energy Ball Milled Porous Composites, EMI 2016, Vanderbilt University, USA
92. A. Salvadori, M. Magri, Multi-Scale Modeling of Multi-Physics Processes in Lithium Ion Battery Cells, IMLB 2016, Chicago, USA
93. Salvadori A., Lee S, Krairi A, and Matous K, Multi-scale Modeling and Simulations of High Energy Ball Milled Porous Composites, EMMC 2016, Brussel, Belgium, 2016
94. A. Salvadori, F. Fantoni, "Three dimensional fracture growth as a standard dissipative system: general theorems and 3D crack tracking algorithms." - 21st European Conference on Fracture (ECF21) , Catania, Italy, 2016
95. Salvadori A., Magri M., Matous K., Mukasyan A., and Schaefer, J. Multi-scale Modeling of Multi-physics Processes in Lithium Ion Battery Cells, SES 2016, Maryland, USA, 2016
96. Salvadori A., Lee S., Subber W., Matous K., Pauls J., Mukasyan A., Gunduz I., Son S. Co-Designed Simulations and Experiments of Projectile Impact Test with Uncertainty Quantification, SES 2016, Maryland, USA, 2016
97. Subber W., Salvadori A., Lee S., Matous K, Uncertainty Quantification of the Reverse Taylor Impact Test and Localized Asynchronous Space-Time Algorithm, American Physical Society, 20th Biennial Conference of the APS Topical Group on Shock Compression of Condensed Matter, St. Louis, MO, July 9-14, 2017
98. Salvadori A., Recent outcomes on the fracture propagation in brittle materials as a standard dissipative process, CFRAC 2017, Fifth International Conference on Computational Modeling of Fracture and Failure of Materials and Structures, Nantes, France, 14-16 June 2017.
99. Lee S., Salvadori A., Subber W., Matous K, Verification and Validation of Thermo-Mechanical Shock Modeling of High Energy Ball Milled Materials with Uncertainty Quantification. USACM's 14th U.S. National Congress for Computational Mechanics (USNCCM14), 2017
100. Lee S., Salvadori A., Subber W., Matous K, Verification and Validation of Thermo-Mechanical Shock Modeling of High Energy Ball Milled Materials with Uncertainty Quantification. SES 2017, Boston, USA, 2017
101. V. Damioli, A. Salvadori, G.P. Beretta, C. Ravelli, S. Mitola, "A study on the VEGFR2-ligand multi-physics interactions in Angiogenesis.", Bio-Math Modeling Workshop (MOBI-2017), Rome June 26-28, 2017.
102. M. Magri, A. Salvadori, D. Grazioli, R. McMeeking, "A chemo-mechanical model of the response of electrode particles in Li-ion batteries.", 7th International Conference on Advanced Computational Methods in Engineering, Gent, Belgium, September 18 till September 22, 2017
103. M. Magri, A. Salvadori, A COMPUTATIONAL HOMOGENIZATION APPROACH FOR (LI-ION) BATTERY CELLS: MICROSCALE ANALYSIS. ECCOMAS Thematic Conference: Computational Modeling of Complex Materials across the Scales, CMCS 2017, Paris, France, November 7-9, 2017

*National scientific congresses and workshops abstracts and presentations:*

1. Padova - September 1996 – AIMETA\_: “Analytical time integrations for the BEM in heat transfer conduction”
2. Siena - September 1997 - AIMETA : “Comparison between two boundary element symmetric formulations for diffusion problems”
3. Siena - September 1997 - AIMETA : “Extremal formulations for elastic and elastic-plastic analysis by boundary integral equations ”
4. Como – October 1999 – AIMETA 1999 : “Symmetric Galerkin Boundary Element Method in quasi-brittle fracture mechanics”
5. Brescia – November 2000 – GIMC\_2000 : “Symmetric Galerkin BEM for domains connected by cohesive interfaces: formulation and implementation”
6. Brescia – November 2000 – GIMC 2000 : “Numerical analysis of the jaw teeth system”
7. Taormina – September 2001 – AIMETA 2001 : “Effect of preconditioning kernels on the stability of variationally based time integration methods”
8. Taormina – September 2001 – AIMETA 2001 : “A panel clustering algorithm for 3D SGBEM with inner analytical integrations in elasticity”
9. Taormina – September 2001 – AIMETA 2001 : “Symmetric Galerkin BEM for domains connected by cohesive interfaces”
10. Ferrara – September 2003 – AIMETA 2003 : “Cohesive interface numerical simulations via boundary integral equations”
11. Ferrara – September 2003 – AIMETA 2003 : “The problem of FRP-concrete delamination: analysis via boundary element”
12. Genova – June 2004 – GIMC 2004 : “SGBEM simulations over unbounded domains”
13. Venezia – September 2004 – SIMAI 2004 : “Restriction matrices and symmetric panel clustering method for multi-domain SGBEM”
14. Firenze – September 2005 – AIMETA 2005 : “BEM simulations over unbounded domains”
15. Firenze – September 2005 – AIMETA 2005 : “Boundary integral fracture analysis and hypersingular evaluation”
16. Bologna – June 2006 – GIMC 2006 : “On crack propagation analysis via SGBEM”
17. Ragusa – May 2006 – SIMAI 2006 : “Il centro di studio e ricerca di sismologia applicata e dinamica strutturale della facoltà di ingegneria dell'Univerista' degli studi di Brescia: un'arena per matematici applicati ed ingegneri”
18. Ragusa – May 2006 – SIMAI 2006 : “Equazioni integrali di contorno per il problema elastodinamico: discretizzazione temporale e procedure evolutive.
19. Brescia – September 2007 – AIMETA 2007 : “A plasticity framework for fracture mechanics”
20. Brescia – September 2007 – AIMETA 2007 : “Space-Time variational formulations for BIEs related to the wave problem”
21. Parma – September 2007 – Workshop: Equazioni Integrali: recenti sviluppi numerici e nuove applicazioni – “Issues on fracture mechanics and boundary integral equations.”
22. Roma – September 2008 – SIMAI 2008 : “ On analytical integrations in 3D BEM elastodynamics”
23. Milano – January 2009 – GMA 2009: “A plasticity framework for fracture mechanics”
24. Ancona – September 2009 – AIMETA 2009: “Ceradini's approach for fracture mechanics”
25. Ancona – September 2009 – AIMETA 2009: “On the approximation of 3D hyperbolic boundary integral equations”

26. Palermo – February 2010 – GMA 2010: “Variational theorems in fracture mechanics”
27. Udine – February 2011 – GMA 2011: “On the mixed mode growth of brittle and interface cracks”
28. Bologna - September 2011 - AIMETA 2011: “Crack kinking in Lithium-ion batteries ”
29. Bologna - September 2011 - AIMETA 2011: “Multi-scale modelling of localization and damage”
30. Bologna - September 2011 - AIMETA 2011: “3D BEM for Time-Dependent Acoustics”
31. Lucca – April 2012 – GMA 2012: “Multiscale modelling of localization and damage through computational homogenization”
32. Lucca – April 2012 – GMA 2012: “First attempts in multiscale modelling of Li-ion batteries: a computational homogenization approach.”
33. Lucca – April 2012 – GMA 2012: “Minimum theorems in 3D incremental linear elastic fracture mechanics”
34. Torino- June 2012 - SIMAI 2012: “Recent advances in fracture mechanics modeling via boundary elements”
35. Torino - September 2013 - AIMETA 2013: “Recent advances in modeling hyperbolic problems via BEM”
36. Torino - September 2013 - AIMETA 2013: “Multi-scale and multi-physics modelling of Li-ion batteries: a computational homogenization approach.”
37. Torino - September 2013 - AIMETA 2013: “Minimum theorems in 3D incremental linear elastic fracture mechanics”
38. Fantoni, F., Salvadori, A., Wawrzynek, P, Mantic, V., “Crack tracking algorithms for 3D LEFM based on weight function approximation schemes” - “XXII Congresso Nazionale AIMETA”– (2015) Genova, Italy - September 2015
39. Zammarchi, M., Fantoni, F., Salvadori, A. “High Order Triangular Boundary Elements for 3D Fracture Mechanics” - “XXII Congresso Nazionale AIMETA”– (2015) Genova, Italy - September 2015
40. Damioli, V., Ravelli, C., Mitola, S., Grazioli, D., Salvadori, A., “Modeling Vascular Endothelial Growth Factor Receptor-2 relocation and localization.” - “XXII Congresso Nazionale AIMETA”– (2015) Genova, Italy - September 2015
41. Magri, M., Grazioli D., Salvadori, A., Bortot, P., Chiantoni, G., “On modeling hydrogen diffusion and embrittlement in metals.” - “XXII Congresso Nazionale AIMETA”– (2015) Genova, Italy - September 2015
42. Grazioli D., Magri, M., Salvadori, A., Geers, M.G.D., Bower, A., “Multi-physics Process Modeling of Lithium Ion Battery Cells.” - “XXII Congresso Nazionale AIMETA”– (2015) Genova, Italy - September 2015
43. Magri, M., Grazioli D., Salvadori, A., “Multi-scale Modeling of Multi-physics Processes in Lithium Ion Battery Cells.”, GMA 2016, Lucca – June 2016.
44. Grazioli D., Salvadori, A., Bower, A.F. “Multiscale and multi physics modeling of Li-ion battery cells.”, GMA 2016, Lucca – June 2016.
45. M. Magri, A. Salvadori, D. Grazioli, R. McMeeking, “A chemo-mechanical model of the response of electrode particles in Li-ion batteries.” - “XXIII Congresso Nazionale AIMETA”– (2017) Salerno, Italy - September 2017
46. V. Damioli, A. Salvadori, G.P. Beretta, C. Ravelli, S. Mitola, “A study on the VEGFR2-ligand multi-physics interactions in Angiogenesis.” - “XXIII Congresso Nazionale AIMETA”– (2017) Salerno, Italy - September 2017
47. A. Salvadori, P. Wawrzynek, F. Fantoni, “Recent outcomes on the fracture propagation in brittle materials as a standard dissipative process.” -

“XXIII Congresso Nazionale AIMETA”– (2017) Salerno, Italy - September 2017

## Seminars organization

1. Brescia – September 2001 – PhD course on “Fast integral operators for BIE” – Prof. Klaus Giebermann – University of Bonn - Germany
2. Brescia – November 2004 – Seminar on “Coupled level set-boundary integral simulations of wave breaking” – Prof. Leonard Gray, Oak Ridge National Laboratory, - USA
3. Brescia – June 2005 – Seminar on: “Coupled level set-boundary integral simulations in fracture mechanics” – Prof. Leonard Gray, Oak Ridge National Laboratory, - USA
4. Brescia – June 2005 – Seminar on: “Analysis of Interface Cracks in Composites by Boundary Element Method” – Prof. V. Mantic, Universidad De Sevilla, Spagna
5. Brescia – June 2005 – Seminar on: “Crack Propagation Modeling: theory and finite element simulations” Prof. P. Wawrzynek, Cornell University, USA
6. Brescia – May 2006 – Seminar on: “Analysis of Interface Cracks in Composites by Boundary Element Method” – Prof. V. Mantic, Universidad De Sevilla, Spagna
7. Brescia – May 2006 – Seminar on: “Recent Advances in Boundary Elements” Prof. M.H. Aliabadi, Imperial College, UK
8. Brescia – December 2006 – Seminar on: “Multi-Scale Modeling of Fatigue Crack Initiation and Growth in an Aerospace Aluminum Alloy” – Prof. P. Wawrzynek, Cornell University, USA
9. Brescia – December 2006 – Seminar on: “BEM/FEM analysis of mems and nems with thin features ” – Prof. S. Mukherjee, Cornell University, USA
10. Brescia – October 2007 – Seminar on: “An accelerated BEM approach for non-homogeneous linear problems in 3D complex domains ” – Prof. Leonard Gray, Oak Ridge National Laboratory, - USA
11. Brescia – October 2007 – Seminar on: “Fast and accurate boundary element methods ” – Prof. S. Rjasanow, Universitaet des Saarlandes, 66041 Saarbruecken, Germany
12. Salo` – November 2007 – Seminar on: “Experimental and Numerical Studies of the Seismic Performance of Masonry-Infilled RC Frames ” – Prof. B. Shing, University of California at San Diego, USA
13. Brescia – March 2008 – Seminar on: “Introduction to Asynchronous variational integrators” - Prof. P.M Mariano, university of Firenze, Italy
14. Brescia – November 2008 – Seminar on: “High-Resolution Forward and Inverse Earthquake Modeling in Large Basins ” – Prof. J. Bielak, Carnegie Mellon University, USA
15. Brescia – November 2008 – Seminar on: “Earthquake Simulation: From Rupture to Virtual City Response” – Prof. J. Bielak, Carnegie Mellon University, USA
16. Brescia – November 2008 – Seminar on: “Fast boundary element methods” - Prof. Olaf Steinbach (Graz University of Technology, Austria)

17. Brescia – November 2008 – Seminar on: “Boundary element method for wave propagation: numerics and a fast method” - Prof. Martin Schanz (Graz University of Technology, Austria)
18. Brescia – November 2008 – Seminar on: “Seismic wave propagation and amplification: modelling by classical and fast multipole BEMs” - Prof. Jean-Francois Semblat (Laboratoire Central des Ponts et Chaussees, France)
19. Brescia – September 2009 – Seminar on: “Computer modeling and simulation of biomedical devices (prostheses) using numerical methods” - Prof. M. Cerrolaza (National Institute of Bioengineering Universidad Central de Venezuela)
20. Brescia – October 2009 – Seminar on: “A hybrid technique for transient analysis of crack inclusion interaction” - Prof. Phan, A.V. University of South Alabama at Mobile, USA
21. Parma – October 2009 – Seminar on: “Level Set-Boundary Integral Simulation of the Rayleigh-Taylor Instability” - Prof. Gray, L.J. Oak Ridge National Laboratory, USA
22. Parma – October 2009 – Seminar on: “On variational formulations for elastic domain decomposition problems solved by SGBEM enforcing coupling conditions in a weak form” - Prof. V. Mantic, Universidad De Sevilla, Spagna
23. Brescia – January 2010 – Seminar on: “Surface-wave tomography of Europe” - Prof. L. Boschi (ETH, Zurich, CH)
24. Brescia – Fall 2010 – Seminar on: “Asymptotic fields ahead of mixed mode frictional cohesive cracks” - Prof. B. Karihaloo, Cardiff University, UK
25. Brescia – Fall 2010 – Seminar on: “Hierarchical multilayered cell walls reinforced by recycled silk cocoons enhance the structural integrity of honeybee combs” Prof. B. Karihaloo, Cardiff University, U.K.,
26. Brescia – Fall 2010 – Seminar on: “A multiscale approach to fracture” - Prof. M. Geers, TU Eindhoven
27. Brescia – June 2011 – Seminar on: “DUCTILE FRACTURE Theory, Model Identification and Industrial Applications” - Prof. T. Wierzbicki (MIT, Boston, USA)
28. Brescia – Spring 2011 – Seminar on: “Fracture of Piezoelectric Ceramics” - Prof. L. Banks-Sills, Tel Aviv University, Israel
29. Brescia – Spring 2011 – Seminar on: “Probabilistic Simulation of Fatigue Processes in a High-Strength Aluminum Alloy”, Prof. A. Ingraffea, Cornell University, USA
30. Brescia – November 2011 – Seminar on: “CRACK FRONT INSTABILITY IN MODE I+III: EXPERIMENTAL AND THEORETICAL APPROACHES”, Prof. J.B. Leblond, Universite Pierre et Marie Curie, Paris, France
31. Brescia – July 2012 – Seminar on: “Dynamic failure and fragmentation in ductile materials.”, Professor K. Ravi-Chandar, The University of Texas at Austin, Austin, TX
32. Brescia – October 2012 – Seminar on: “A finite strain model of stress, diffusion, plastic flow, and electrochemical reactions in a lithium-ion half-cell”, Professor A. Bower, Brown University, Providence, USA
33. Brescia – December 2012 – Seminar on: “Lithium batteries: status and prospects. Beyond lithium-ion batteries: lithium-sulfur and lithium-air cells.”, Professor B. Scrosati, La Sapienza, Rome.
34. Brescia - June 2013 - Fatigue Crack Growth Analysis of Structural Components - the UniGrow Two-Parameter Driving Force Model, Professor G. Glinka, University of Waterloo, Canada
35. Brescia - September 2013 - Nanoscale Mechanism of Hydrogen Embrittlement, Professor W. Curtin, Director Institute of Mechanical



- Engineering EPFL, Lausanne, CH & Adjunct Professor, School of Engineering, Brown University, Providence, RI, USA
36. Brescia - April 2014 - UNCOVERING THE CHEMO-MECHANICS OF FRACTURE VIA QUANTUM MECHANICS BASED CONCURRENT MULTISCALE MODELING - D. Warner, Cornell University, USA
  37. Brescia, September 2014 - Wave-crack interaction in finite elastic bodies - Anna-Margarete Sändig - Institute of Applied Analysis and Numerical Simulation Universität Stuttgart, D- 70569 Stuttgart, Germany
  38. Brescia, June 2015 - S. Mogilevskaya, "Lost in Translation: Crack Problems in Different Languages" - Workshop "Advances in the mechanical modeling of materials and structures"
  39. Brescia, June 2015 - L. Banks Sills, "Delamination toughness and fatigue propagation tests in multidirectional woven composites" - Workshop "Advances in the mechanical modeling of materials and structures"
  40. Brescia, September 2017 - KATIE BENTLEY, Assistant Professor of Pathology, Harvard Medical School, USA - "The Temporal Basis of Angiogenesis"
  41. Brescia, March 2018 - Milan Jirásek, Czech Technical University in Prague, Czech Republic - "Regularized Models for Softening Materials"

## **Part 2 - Research management**

## Technical-scientific leadership

During my appointment at the University of Notre Dame I acted as leader of the Computational Physics team at the C-SWARM PSAAP Center, coordinating the activity of 14 people including post-docs, Ph.D. and grad students.

At the University of Brescia I founded the Multiscale Mechanics and Multiphysics of Materials Lab ( <http://m4lab.unibs.it> ) and tutored several grad and undergrad students ( see Section 3 on this CV for a complete list ). Several research projects have been funded and completed within the lab, see the relevant website for a complete list.

I have been scientific responsible in INTERNATIONAL RESEARCH AGREEMENT Memorandum of Understanding Agreement Between the University of Brescia, Department of Civil Engineering, Architecture, Land and Environment and:

*the University of Seville, Department of Continuum Mechanics, Theory of Structures and Soil Engineering*

*the Cornell University, the United States of America*

*the Universidad Central de Venezuela, Instituto Nacional de Bioingeniería*

*the University of Sydney, School of Geosciences, Earthbyte group*

*the University of South Alabama at Mobile, the United States of America*

*the University of Minnesota at Minneapolis, the United States of America*

## Fundraising

I have acted as PI or Co-PI in several proposal under Horizon 2020, M-ERA, COST actions, NSF. Needless to say, many of them have not been successful, but indeed several went true as the MARIE CURIE ACTIONS - Intra-European Fellowships (IEF) Call: FP7-PEOPLE-2011-IEF, Mechanics of Energy Storage: Swelling and Fracturing in Lithium Batteries electrodes during Charging/Discharging Cycles (LiSF).

Several projects have been funded by large international companies (Tenaris Dalmine), small medium enterprises (Ferro-Met, Nuova Goffi SRL), Bank sponsored fellowships (CARIPLO), Lombardy Region (Steel Pro 4.0), Cilea (now CINECA), European Union in FP7 framework (an IEF Marie Curie fellowship), Junta de Andalusia fellowships (2016 and 2013), RESEARCH GRANTS COUNCIL Hong-Kong (2010), MIUR Prin funding (PRIN 2007), University of Brescia research funds.

Currently active, externally funded projects include:

- Steel Pro 4.0,

REGIONE LOMBARDIA - PROGRAMMA OPERATIVO REGIONALE 2014-2020

OBIETTIVO “INVESTIMENTI IN FAVORE DELLA CRESCITA E DELL'OCCUPAZIONE” (cofinanziato con il FESR) , budget: Euro 3,463,000. Role: Task manager

- COMPFRAC,

Spanish Ministry of Economy and Competitiveness), and The European Regional Development Fund (ERDF). New approaches in computational fracture mechanics to characterize crack initiation and propagation in composites at different scales. Role: member.

- LiBX

LISA 2016-2018 HPC simulations for the design of Li-ion batteries under extreme conditions. Budget: 25,000 computational hours on Marconi, a TOP500 HPC at CINECA.

I am at disposal for further information on this matter.

## Computer codes implementation

### *BatterieX++*

An object oriented, HPC finite element code for multi-physics and multi-scale modeling of processes in batteries. Includes transport by electro-migration, diffusion, chemical reactions, non-linear (both geometrical and material) mechanics. It has been developed within the framework of **deal.II**.

### *aLice*

An object oriented multi-platform code (tested on MAC-OS X 10.5, Win32, Ubuntu linux 10.04) for Boundary Elements analysis of:

- steady problems (2D/3D: Laplace, Poisson, Elastostatic with body forces, Thermoelasticity; 2D: Linear Elastic Fracture Mechanics)
- time dependent problems (3D: scalar wave equation, elastodynamics)

Implementation in C++ by using of GNU gcc compiler with libraries: Qt visual interface, GSL, MPI. It includes:

- fast integral operator techniques (HMatrices with ACA compression new implementation) - special elements (crack tips, Hermite) - SIFs and T stress approximation

Developments in progress: moving already implemented code at UniBS, with special emphasis on cohesive fracture mechanics; parallelization; contact mechanics; crack propagation algorithm; further link with already implemented stuff somewhere? (PFFT, FGM, anisotropy, piezo-electric materials, ...); dislocation mechanics; dynamics.

It's available upon request.

### *CohesivePad*

An object oriented Win32 code for analysis and comparisons of cohesive models based on standard experimental campaigns.

It's available upon request.

*Proptimizer*

A Mathematica script for props optimization. More than 1 million configuration tested. It's on sale.

## **Part 3 - Research projects**

Research projects at C-SWARM, Center for Shock Wave-processing of Advanced Reactive Materials, University of Notre Dame, USA

**1 - Image-Based modeling of High Energy Ball Milled metal powder composite materials.**

*In cooperation with:*

*Proff. K. Matous, A. Mukasyan, University of Notre Dame, USA;*

*Achievements:*

- *International congresses and workshop presentations: 4.*
- *Papers submitted: 2.*

**2 - Image-Based 3D modeling of electrode materials in (Li-ion) batteries**

*In cooperation with:*

*Proff. A. Mukasyan, J. Schaefer, University of Notre Dame, USA;*

*Achievements:*

- *2016, University of Notre Dame FY2016 FRSP Initiation Grant Program*
- *International congresses and workshop presentations: 1.*

**3 - Poro-viscoplastic modeling of High Energy Ball Milled metal powder composite materials at extremely high strain rates.**

*In cooperation with:*

*Proff. K. Matous, A. Krairi, University of Notre Dame, USA;*

*Achievements:*

- *International congresses and workshop presentations: 1.*
- *Papers submitted: 1.*

On going research projects at m4lab, Multiscale Mechanics and Multiphysics of Materials Lab, that I founded in 2014.

**1 - Multiscale and multi-physics modeling of Energy Storage Materials, in particular Li-ion battery electrodes.**

*In cooperation with:*

*Prof. L. Anand Massachusetts Institute of Technology MIT, Boston, USA;*

*Prof. A. Bower, Brown University, Providence, USA;*

*Proff. M. Geers, V. Kouznetsova, Dr. E. Bosco, TUE, the Netherlands*

*Prof. P. Notten, D. Danilov, Julich forschungszentrum, Germany*

*Prof. B. Scrosati, IIT Genova, Italy*  
*Prof. S. Passerini, Helmholtz-Institut Ulm*

*Achievements:*

- *Papers published: 5*
- *International congresses and workshop presentations: 18.*

*Achievements:*

- *LISA Project: HPC simulations for the design of Li-ion batteries under extreme conditions. - 25000 hours on HPC at CINECA*

*Industries involved:*

- *Samsung, Japan Branch*

**2 - Crack propagation modeling in brittle and H-embrittled materials: numerical simulations, multiscale analysis, plasticity analogies, SIF evaluation algorithms, real-life applications.**

*In cooperation with:*

*Prof. A. Carini, University of Brescia, Italy;*  
*Prof. J.B. Leblond, Université Pierre et Marie Curie (Paris VI), France;*  
*Proff. T. Ingraffea, P. Wawrzynek, Cornell University, USA;*  
*Prof. D. Warner, Cornell University, Ithaca, USA;*

*Industries involved:*

- *Tenaris Dalmine, Italian Branch*

*Achievements:*

- *International congresses and workshop presentations: 20+.*
- *Invited lectures: 4;*
- *Papers published: 7.*
- *Papers submitted: 3.*
  
- *Research grants, 3.*

**3 - Multiscale and multi-physics modeling of angiogenesis**

*In cooperation with:*

*Proff. M. Memo, S. Mitola, C. Ravelli, G. Beretta, Università di Brescia*

*Achievements:*

- *International congresses and workshop presentations: 4.*
- *Papers submitted: 2.*

**4 - Sustainable high strength steel production**

*In cooperation with:*



*Prof. M.Gelfi, M. La Vecchia, E. Ceretti, G. Donzella University of Brescia, Italy;*

*Industries involved:*

*- Acciaierie di Calvisano*

*Achievements:*

*- R.L. funded the project "SteelPro 4.0 – Sviluppo di acciai speciali attraverso innovazioni nella realizzazione del processo di fabbricazione, caratterizzazione dei materiali e controllo integrato dell'intera filiera produttiva." with budget of 5.640.992,00 euros*

## **Part 4 - Contribute to education**

## International summer school organization

29/08 - 2/09/2011 - LARGE SCALE BOUNDARY ELEMENTS COMPUTING. Lecturers: Prof. S. Rjasanow, L. Weggler, R. Grzibovskis (Universitaet Saarlandes), Prof. G. Morra (Seoul National University), Prof. Y. Liu (University of Cincinnati). Held at the Faculty of Engineering, University of Brescia

June 25 to June 29, 2012, "Computational Multiscale Fracture Mechanics". Lecturers: Prof. S. Bordas, University of Cardiff, Wales, Prof. D. Warner, Cornell University, USA. Held at the Faculty of Engineering, University of Brescia

July 19 to July 25, 2017, "Mechanics for the green economy". Lecturers: Prof. A. Sanson, D. Bigoni, A. Piccolroaz, A. Salvadori, S. Mogilevskaia, W. Bangerth. Held at the Faculty of Engineering, Universities of Brescia and Trento, 2017

## Graduate school facts

### PhD students supervised or co-supervised

1. Temponi Alessandro, PhD student at University of Brescia, 2009
2. Bosco Emanuela, PhD student at University of Brescia, 2010
3. Valvona Filippo, PhD student at University of Pescara, 2011
4. Grazioli Davide, PhD student at University of Brescia, 2012
5. Fantoni Francesca, PhD student at University of Brescia, 2013
6. Marco Magri, grad student at University of Brescia, 2015
7. Valentina Damoli, grad student at University of Brescia, 2015
8. Mattia Serpelloni, grad student at University of Brescia, 2017
9. Buket Boz, grad student at University of Brescia, 2017
10. Tanmay Dev, grad student at University of Brescia, 2017

### PhD students hosted.

11. Tavera Luis, PhD student at University of Seville, Spain, 2009

### International PhD courses organization

1. Brescia – July 2003 – PhD course on “Moving Boundary Problems via BIE” – Prof. Leonard Gray, Oak Ridge National Laboratory, - USA
2. Brescia – September 2010 – Course on: “Fracture mechanics: theory and finite element simulations” Prof. P. Wawrzynek, Cornell University, USA

### PhD committees

Member of the final evaluation committee at Politecnico di Milano, Doctoral School in Structural Mechanics, 2012.

### Former students research career

1. *Baldelli Alberto*, PhD at University of Alberta, Canada, 2016
2. *Bosco Emanuela*, Post-Doc fellowship at TU/e Eindhoven, 2013. Currently Assistant Professor at TU/e Eindhoven, Netherlands, 2016.
3. *Colombi Andrea*, PhD fellowship at ETH Zurich, Switzerland, 2009. Post-doc fellowship at Grenoble University, France. Currently post-doc at Imperial College, UK

4. *Fantoni Francesca*, Post-doc Fellowship at IMLT Lucca, 2016.
5. *Grazioli Davide*, Post-doc Fellowship at TU/e Delft, 2016.
6. *Pizzocolo Francesco*, PhD fellowship at TU Eindhoven, Netherlands, 2008 - Currently Researcher at TNO-Utrecht, Netherlands
7. *Zammarchi Mattia*, Ph.D.candidate at University of Minnesota, USA, 2016

## Teaching

### *Undergraduate teaching*

1. 1996-1997: EULO grant for assistance, tutoring and examination activities in the Mechanics of Solids course offered by Prof. A. Carini
2. 2000-2003: (THREE YEARS) Università di Brescia, Facoltà di Ingegneria: assistance, tutoring and examination activities in the Mechanics of Solids for Management engineering students
3. 2005-2010: (SIX YEARS) Università di Brescia, Facoltà di Ingegneria: assistance, tutoring and examination activities in the Mechanics of Solids course for Civil engineering students.
4. 2010- currently: Università di Brescia, Facoltà di Ingegneria: assistance, tutoring and examination activities in the Mechanics of Solids and Structures course for Civil engineering students.
5. 2002-2010 : (NINE YEARS) Università di Brescia, Facoltà di Ingegneria: Introduction to Structural Mechanics (Strength of Materials) course for Mechanical engineering students
6. 2010- currently: Università di Brescia, Facoltà di Ingegneria: Mechanics of Solids and Structures course for Mechanical engineering students
7. 2004-2006 (TWO YEARS): Università di Parma, Facoltà di Architettura: Statics.

### *Graduate teaching*

1. 1996-2001: (FIVE YEARS) grant for assistance, tutoring and examination activities in the Numerical Analysis course offered by Prof. M. Diligenti, in the framework of NETTUNO Telematic project (see: the web page: <http://www.uninettuno.it>).
2. "Mechanics and multi-physics of materials" - 2015 - Università di Brescia, PhD school "Mathematical models and methods for engineers".
3. "Computational Inelasticity" - 2011 - Università di Brescia, Civil engineering.
4. "Computational Inelasticity" - 2011 - Università di Brescia, PhD school "Mathematical models and methods for engineers".
5. "Fracture mechanics" - 2010 - Università di Brescia, Civil engineering.
6. "Fracture mechanics" - 2010 - Università di Brescia, PhD school "Mathematical models and methods for engineers".
7. "Introduction to the Mechanics of Solids and Structures" 2003-2010 Università di Brescia, Facoltà di Ingegneria, Management engineering

## Final projects career supervised:

### Undergraduate students of management engineering

1. Colosio F. – Puntelli telescopici regolabili di acciaio: analisi numeriche e gestionali per la determinazione di puntelli ottimali secondo la normativa UNI EN 1065 – supervisor Ing. A Salvadori - July 2007;
2. Magoni C., Lovo G. - Controllo del processo di zincatura di barre da C.A. – supervisor Prof. A Franchi, co-supervisor Ing. A Salvadori – October 2003 ;
3. Gerosa B. – La gestione del progetto e del cantiere della Rocca di Frassinello nel comune di Gavorrano – supervisor Prof. A Franchi, co-supervisor Ing. A Salvadori – March 2005 ;
4. Guatta Caldini A., Arceri M. – L'utilizzo di tubi in acciaio per il consolidamento di muri spondali dei Navigli a Milano - supervisor Prof. A Franchi, co-supervisor Ing. A Salvadori – March 2005;
5. Feller F. – I tubi in acciaio utilizzati nelle opere di fondazione e contenimento terra - supervisor Prof. A Franchi, co-supervisor Ing. A Salvadori – July 2005 ;
6. Modena S. – Puntelli telescopici regolabili di acciaio: analisi strutturale secondo la normativa UNI EN 1065 – supervisor Ing. A Salvadori - October 2004;
7. Pansini A. – Puntelli telescopici regolabili di acciaio: analisi sperimentale secondo la normativa UNI EN 1065 – supervisor Ing. A Salvadori - March 2005 ;
8. Gibertoni R. – Construction management: un caso applicativo – supervisor Ing. A Salvadori - September 2005 ;

### Undergraduate students of mechanical engineering

9. Do, S. - Phase segregation in Li-ion battery electrodes - 2013
10. Guzzeloni, A. - Hydraulic fracture - March 2012
11. Strippoli G. – Meccanica della frattura mediante elementi al contorno – supervisor Ing. A Salvadori - September 2011
12. Rivadossi, D. - Aspetti introduttivi della meccanica dei carbon nanotubes: aspetti di meccanica molecolare - supervisor Ing. A Salvadori - Sept. 2009;
13. Berardi, M. - Modellazione del comportamento meccanico di nanotubi mediante la teoria delle travi - supervisor Ing. A Salvadori - Sept. 2008;
14. Maso A. – Approssimazione del fattore di intensificazione degli sforzi con il metodo degli elementi al contorno alla Galerkin – supervisor Ing. A Salvadori - October 2004
15. Marzi R. - Puntelli telescopici regolabili di acciaio: analisi sperimentali secondo la normativa UNI EN 1065 – supervisor Ing. A Salvadori - October 2005

### Undergraduate students of civil engineering

16. Cominelli M. - Propagazione di fratture in modo misto in mezzi elastici: alcuni esperimenti numerici - supervisor Ing. A Salvadori, Ing. F. Fantoni – Luglio 2013;

17. Fantoni G. - Puntelli telescopici regolabili di acciaio: analisi strutturale secondo la normativa UNI EN 1065 supervisor Ing. A Salvadori – Nov. 2011;
18. Zizioli, G. - Sviluppi asintotici nella meccanica della frattura 3D – supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini, Ing. E. Bosco – Nov. 2010;
19. Zani, L. - L'approssimazione numerica del T stress mediante il metodo degli elementi al contorno - supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – 2009;
20. Tonelli, M. - Propagazione di fessure nell'ambito della meccanica della frattura coesiva - supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – 2009;
21. Bergomi, E. - Meccanica della frattura coesiva in materiali compositi laminati, 2009.
22. Tonini, F. - Meccanica della frattura in materiali anisotropi – supervisor Ing. A Salvadori - September 2008;
23. Ferrari, F. - Problemi a potenziale in 3D con il metodo degli elementi al contorno – supervisor Ing. A Salvadori - Feb 2008;
24. Pizzocolo, F. - Problemi di meccanica della frattura con contatto monolatero – supervisor Ing. A Salvadori - Feb 2008;
25. Do, L. - Criteri di propagazione di fratture in materiali quasi-fragili – supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini - November 2007;
26. Bosco, E. - BEM for 2D elastodynamics - supervisor Prof. A. Carini, co-supervisor Ing. A. Salvadori - September 2007
27. Pelizzari P. – Meccanica della frattura elastica lineare: confronto teorico e numerico fra criteri di propagazione della fessura in solidi tridimensionali – supervisor Ing. A Salvadori - September 2005;

#### Graduate students of management engineering

28. Baldelli, A. - Multiscale fracture mechanics, Life Cycle Engineering and Management, supervisor Ing. A Salvadori, co-supervisor Ing. E. Bosco – July 2011;
29. Zizioli, M., Ghibelli, A. - La progettazione e la produzione di puntelli in alluminio: analisi gestionali, progettuali, normative – supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – March 2011;
30. Colombi, A. – H matrices: a literature survey, engineering applications, and patent policies - supervisor Ing. A Salvadori - March 2009
31. Palini, O. – Modello di organizzazione, gestione e controllo ex D.Lgs. 231/01: il caso Gruppo Industriale Tosoni S.p.A. – supervisor Ing. A Salvadori - Feb. 2009
32. Lazzari E., Palmeri A. – Project management and financing: un caso applicativo – supervisor Ing. A Salvadori - March 2008
33. Laffranchi A., Bonassi F. – Construction management: un caso applicativo – supervisor Ing. A Salvadori - October 2006;

#### Graduate students of mechanical engineering

34. George Marshall Naykene - BEM for composite material modeling, 2017 (in cooperation with S. Mogilevskaia, University of Minnesota, USA)
35. Strippoli G. – Meccanica della frattura 3D mediante elementi al contorno – supervisor Ing. A Salvadori - Marzo 2015

36. Rossi, A. - Phase segregation modeling and experimental analyses, 2014, in cooperation with Colorado School of Mines
37. Maso A. – Algoritmi efficienti nella propagazione di fessure con il metodo degli elementi al contorno alla Galerkin – supervisor Ing. A Salvadori - October 2006

#### Graduate students of civil engineering

38. Cominelli M. - Propagazione di fratture in modo misto in mezzi elastici: alcuni esperimenti numerici in presenza di gradienti termici - supervisor Ing. A Salvadori, Ing. F. Fantoni – Luglio 2016;
39. Do, S. - Multiscale modeling of phase segregation in Li-ion battery electrodes - March 2016
40. Magri, M. - Modeling saturation of species in Li-ion batteries electrodes and electrolyte. – supervisor Ing. A Salvadori, ing. D. Grazioli – September 2014
41. Fantoni G. - Puntelli telescopici regolabili di acciaio e in alluminio: analisi di forme innovative - supervisor Ing. A Salvadori – Marz. 2015;
42. Damioli, V. - Multiscale modeling of glass sealant for Solid Oxide Fuel cells – supervisor Ing. A Salvadori, ing. D. Grazioli – September 2014
43. Zammarchi, M. - Elementi speciali per la meccanica della frattura nel metodo degli elementi al contorno in 3D – supervisor Ing. A Salvadori, ing. A. Temponi – March 2014;
44. Bocchi, E. - Simulazione numerica della diffusione di specie in solidi metallici, – supervisor Ing. A Salvadori, ing. D. Grazioli – March 2014;
45. Zizioli, G. - Computational modeling of fracture propagation in brittle materials – supervisor Ing. A Salvadori – July 2013;
46. Tonelli, M. - Un modello di interfaccia coesivo elastoplastico non associato - supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – September 2013;
47. Bergomi, E. - Cohesive fracture mechanics for delamination in aerospace composites, 2012.
48. Zani, L. - L'approssimazione numerica di SIFs e T stress mediante il metodo degli elementi al contorno in 3D - supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – 2012;
49. Do, L. - Modelli coesivi elastoplastici – supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – November 2011;
50. Grazioli, D. - Hydrogen embrittlement modeling - supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – 2011;
51. Fantoni, F. - 3D Crack propagation in brittle materials. - supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – 2011;
52. Tonini, F. - Meccanica della frattura - Analisi variazionale – supervisor Ing. A Salvadori - March 2011;
53. Bosco, E. - Atomistic elasticity: linking atoms to continuum - supervisor Ing. A Salvadori, co-supervisor Prof. A. Carini – November 2009;
54. Mita, A. - La progettazione e la certificazione di puntelli telescopici regolabili di acciaio secondo la normativa UNI EN 1065 – supervisor Ing. A Salvadori - Febbraio 2010 ;
55. Mordenti, F. – BEM for 3D acoustics – supervisor Ing. A Salvadori - Febbraio 2009
56. Pelizzari P. – Meccanica della frattura dinamica elastica lineare ed equazioni integrali – supervisor Ing. A Salvadori - September 2008
57. Mazzai F. - Equazioni integrali di contorno per il problema elastodinamico: discretizzazione temporale e procedure evolutive –

- supervisor Prof. A. Carini, co-supervisor Ing. A. Salvadori – October 2006;
58. Chiari, L. - Un algoritmo per la propagazione di frattura in mezzi elastici lineari – supervisor Ing. A. Salvadori, co-supervisor Prof. A. Carini - March 2007;