

Curriculum Vitae

INFORMAZIONI PERSONALI

Nome GUIDO
Cognome BORINO
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FORMAZIONE TITOLI

Education and Accademic Cereer

- *Born in Catania (Italy) the 9th June 1958;*
- *High school diploma in July 1977 with 58/60;*
- *Civil Engineering Degree in September 1983 at the University of Palermo with 110/110 cum laude;*
- *Ph.D. in Structural Engineering in October 1989 at the Universities Napoli-Palermo;*
- *Reseacher in Structural Engineering in June 1991 at the Faculty of Engineering of the University of Palermo.*
- *Associate Professor in Structural Engineering in April 1992 at the Faculty of Engineering at the University of Catania.*
- *Associate Professor in Structural Engineering in November 1993 at the Faculty of Engineering at the University of Palermo*
- *Full Professor in Structural Engineering in November 2001 at the Faculty of Engineering at the University of Palermo.*

Research Activities as Visiting

- *From June to August 1997, within the U.E. HCM mobility project, has worked as Visiting Professor at the Engineering Division della Technical University of Delft, The Netherland, in the Research team directed by Prof. Rene de Borst*
- *From August 1987 to June 1988 and from September to December 1989 has worked as Visiting Research Associate at the Engineering Division della Brown University, Providence, Rode Island, USA, where has joined the research grup directed by Proff. P.S. Symonds e H. Kolsky working on elastic-plastic dynamic pulse loading under a grant of the Army Research Office, Contract DAAL03-87K-0038.*

Coordination and elective positions

- *From 1994 to 1995 has been a member of the Executive Committee of the Official Experimental Lab of the Department of Structural Engineering of the University of Palermo;*
- *From 1999 to 2001 has been a member of Managment Committee of the Department of Structural and Geotechnical Engineering of the University of Palermo;*
- *In the 2001 has been a member of the Group of Studies for the implementation of the new orinament rules of the Civil Engineering Studies at the University of Palermo.*
- *From July 2002 to September 2009 has been elected as a member of the National Seceretry of the Italian Group of "Scienze delle Costruzioni" (Solid and Structural Mechanics)*
- *From January 2002 to November 2004 has been the vice-Director of the Inter-Department of Research on Composit Materials.*
- *From November 2003 to June 2008 has been the Dean of the PhD School in Structural Engineering of the University of Palermo.*
- *From February 2004 to February 2007 has been Dean of the Civil Enginnering Corse of the Faculty of Engineering of the University of Palermo;*
- *From June 2003 to June 2006 has been elected member of the National Board of the Italian Group of Computational Mechanics (GIMC);*
- *From November 2007 to December 2008 has been Chair of the Department of Structural and Geotechnical Engineering of the University of Palermo;*
- *From June 2009 to October 2010 has been Chair of the Joint Vigilance Commettee on the Didattic of the Faculty of Engineering of the Unioversity of Palermo.*
- *From Novembre 2010 is Vice-Dean of the Faculty of Engineering of the Unioversity of Palermo.*

RICERCHE FINANZIATE

Coordinamento gruppi di ricerca e/o unità operative

Research Projects Directed

- Local Research Project 60% - 1998 "Localizzazione delle deformazioni in materiali elastoplastici con degrado della resistenza"
- Local Research Project 60% - 1999 "Modelli costitutivi per materiali quasi fragili";
- Local Research Project 60% - 2000 "Modelli non locali con danno per materiali quasi-fragili"
- Local Research Project 60% - 2001 "Modelli danneggiativi non locali in uso nell'ingegneria delle dighe"
- Local Research Project 60% - 2002 "La localizzazione delle deformazioni nei calcestruzzi ad alte prestazioni"
- Local Research Project 60% - 2003 "Lo studio della delaminazione nelle strutture composte laminate e nei rinforzi con bande"
- Local Research Project 60% - 2004 "Problemi accoppiati termo-meccanici per interfacce strutturali"
- Local Research Project 60% - 2005 "Modelli nonlocali di interfaccia meccanica"
- Local Research Project 60% - 2006 "Aspetti fondativi della plasticità a gradiente"
- National Research Project PRIN 98 – "Valutazione della sicurezza strutturale delle grandi dighe" (U.O. Palermo)
- National Research Project PRIN 2000 - "Analisi strutturale agli stati-limite ultimi di grandi dighe" (U.O. Palermo)
- National Research Project PRIN 2001 - "Calcestruzzi ad alte prestazioni, Metodologie di Calcolo e di Progetto ed Aspetti Normativi" (U.O. Palermo)
- National Research Project PRIN 2002 - "Sistemi Diga in Calcestruzzo, fondazione e bacino: Analisi di integrità strutturale in presenza di interazioni" (U.O. Palermo)
- National Research Project PRIN 2003 - "Interfacial damage failure in structural systems: Applicationas to civil engineering and emerging research fields" (U.O. Palermo).
- National Research Project PRIN 2005 - "Resistenza e degrado di interfacce in materiali e sistemi strutturali", (Interfacial resistance and failure in materials and structural systems) (U.O. Palermo).
- National Research Project PRIN 2009 – "Un approccio multiscala per l'analisi dei processi di decoesione e di propagazione della frattura".

PUBBLICAZIONE

MAIN PUBLICATIONS ON INTERNATIONAL JOURNALS

1. G. Borino, G. Muscolino, "Mode-Superposition Methods in Dynamic Analysis of Classically and Non-Classically Damped Linear Systems", *Earth. Eng. and Struc. Dyn.*, **14**, 705-717, 1986.
2. G. Borino, M. Di Paola, G. Muscolino, "Non-Stationary Spectral Moments of Base Excited MDOF Systems", *Earth. Eng. and Struc. Dyn.*, **16**, 745-756, 1988.
3. G. Borino, C. Polizzotto, "A Mathematical Programming Approach to Dynamic Elastoplastic Structural Analysis", *Meccanica*, **23 SI**, 11-19, 1988.
4. P.S. Symonds, G. Borino, U. Perego, *Discussion* "B. Poddar, F.C. Moon, S. Mukherjee, Chaotic Motion of an Elastic-Plastic Beam", *J. App. Mech. ASME*, **55**, 745-746, 1988.
5. G. Borino, U. Perego, P.S. Symonds, "An Energy Approach to Anomalous Damped Elastic-Plastic Response to Short Pulse Loading", *J. App. Mech. ASME*, **56**, 730-438, 1989.
6. U. Perego, G. Borino, P.S. Symonds, "The Role of Damping in Anomalous Response to Short Pulse Loading", *J. Engrg. Mech. ASCE*, **115**, 2782-2788, 1989.
7. C. Polizzotto, G. Borino, S. Caddemi, P. Fuschi, "Shakedown Problems for Material Models with Internal Variables", *Eur. J. Mech. A/Solids*, **10**, (6), 621-639, 1991.
8. J. -Y. Lee, P.S. Symonds, G. Borino, "Chaotic Responses of a Two-Degree-of-Freedom Elastic-Plastic Beam Model to Short Pulse Loading", *J. App. Mech. ASME*, **59**, 711-721, 1992.
9. C. Polizzotto, G. Borino, S. Caddemi, P. Fuschi, "Theorems of Restricted Dynamic Shakedown", *Int. J. Mech. Sci.*, **35**, (9), 787-801, 1993.
10. G. Borino, C. Polizzotto, "Dynamic Shakedown of Structures under Repeated Seismic Loads", *J. Engrg. Mech. ASCE.*, **121**, (12), 1306-1314, 1995.
11. G. Borino, P. Fuschi, C. Polizzotto, "Elastic-Plastic-Damage Constitutive Models with Coupling Internal Variables", *Mech. Res. Com.*, **23**, (1), 19-28, 1996.
12. G. Borino, C. Polizzotto, "Dynamic Shakedown of Structures with Variable Appended Masses and Subjected to repeated Excitations", *Int. J. of Plasticity*, **12**, (2), 215-228, 1996.
13. C. Polizzotto, G. Borino, "Shakedown and Steady-State Responses of Elastic-Plastic Solids in Large Displacements", *Int. J. Solids Structures*, **33**, (23), 3415-3437, 1996.
14. C. Polizzotto, G. Borino, P. Fuschi, "An Extended Shakedown Theory for Elastic-Plastic-Damage Material Models", *Eur. J. Mech. A/Solids*, **15**, (5), 825-858, 1996.
15. C. Polizzotto, G. Borino, P. Fuschi, "A Thermodynamically Consistent Formulation of Nonlocal and Gradient Plasticity", *Mech. Res. Communications*, **25**, 75-82, 1998.
16. C. Polizzotto, G. Borino, "A Thermodynamics-based formulation of gradient-dependent plasticity", *Eur. J. Mech. A/Solids*, **17**, 741-761, 1998.
17. G. Borino, C. Polizzotto, *Discussion* "C. Nilsson, Nonlocal strain softening bar revisited", *Int. J. Solids Structures*, **36**, (20), 3085-3091, 1999.
18. G. Borino, P. Fuschi, C. Polizzotto, "A Thermodynamic Approach to Nonlocal Plasticity and Related Variational Principles", *J. App. Mech. ASME*, **66**, 952-963, 1999.
19. G. Borino, "Consistent Shakedown Theorems for Materials with Temperature-Dependent Yield Functions", *Int. J. Solids and Structures*, **37**, (22), 3121-3147, 2000.

20. G. Borino, R. de Borst, "Some observations on the regularizing field for gradient damage models", *Acta Mechanica*, **140**, (3-4), 149-162, 2000.
21. C. Polizzotto, G. Borino, P. Fuschi, "An approach to elastic shakedown based on the maximum plastic dissipation theorem", **52**, (4-5), 713-735, *Archives of Mechanics*, 2000.
22. C. Polizzotto, G. Borino, P. Fuschi, "Weak forms of shakedown for elastic-plastic structures exhibiting ductile damage" *Meccanica* **36**, 49-66, 2001.
23. G. Borino, S. Del Linz, G. Giambanco, "A Constitutive framework based on elastic and internal energy degradation" *Acta Mechanica*, **152**, (1-4), 19-34, 2001.
24. A. Sofi, G. Borino, G. Muscolino, "Dynamic Analysis of Prestressed Cables with Uncertain Pretension", *Meccanica*, **37**, 67-84, 2002.
25. E. Benvenuti, G. Borino, A. Tralli, "A Thermodynamically consistent nonlocal formulations for damaging materials" *Eur. J. of Mechanics A/Solids* **21**, 535-553, 2002.
26. G. Borino, C. Polizzotto, Letter to the Editor on the paper "Higher-order strain/higher-order stress gradient models derived from a discrete microstructure, with application to fracture", by C.S. Chang, H. Askes and L.J. Sluys; *Engineering Fracture Mechanics*, **70**, 1219-1221, 2003.
27. G. Borino, B. Failla, F. Parrinello, "A Symmetric nonlocal damage theory", *Int. J. Solids and Structures*, **40**, 3621-3645, 2003.
28. G. Borino, C. Polizzotto, Letter to the editor (vol 70, pg 1219, 2003). *Engineering Fracture Mechanics*, **71**, 2257, ISSN: 0013-7944, doi: 10.1016/S0013-7944(03)00098-5, 2004.
29. G. Borino, C. Polizzotto. "Thermodynamically consistent residual-based gradient plasticity theory and comparison". *Modelling and Simulation in Material Science and Engineering*, **15**, p. s23-s35, ISSN: 0965-0393, doi: 10.1088/0965-0393/15/1/S03, 2007.
30. G. Borino, B. Failla, F. Parrinello. "Nonlocal Interface Mechanical Models". *Materials Science Forum*, **539-543**, 2613-2618, ISSN: 0255-5476, 2007.
31. G. Borino, B. Failla, F. Parrinello. "Nonlocal Elastic-Damage Interface Mechanical Model". *Int. J. for Multiscale Computational Engineering*, **5** (2), 152-165, ISSN: 1543-1649, doi: 10.1615/IntJMultCompEng.v5.i2.80, 2007.
32. F. Parrinello, G. Borino. "Lagrangian finite element modelling of dam–fluid interaction: Accurate absorbing boundary conditions". *Computers & Structures*, **85**, 932-943, ISSN: 0045-7949, doi: 10.1016/j.compstruc.2006.11.004, 2007
33. G. Borino, L. Fratini, F. Parrinello. "Mode I failure modeling of friction stir welding joints". *Int. J. Advanced Manufacturing Technology*, **41**, 498-503, ISSN: 0268-3768, doi: 10.1007/s00170-008-1498-1, 2009
34. G. Borino, L. Fratini, F. Parrinello, A. Bulgarella. "Failure Modelling of Friction Stir Welded Joints in Tensile Tests". *Computer Methods in Materials Science*, **9** (1), 37-42, ISSN: 1641-8581, 2009.
35. F. Parrinello, B. Failla, G. Borino. "Cohesive–frictional interface constitutive model", *Int. J. Solids and Structures*, **46**, 2680-2692, ISSN: 0020-7683, doi: 10.1016/j.ijsolstr.2009.02.016, 2009
36. G. Borino, M. Di Paola, M. Zingales, "A non-local model of fractional heat conduction in rigid bodies". *The European Physical Journal. Special Topics*, **193**, 173-184, ISSN: 1951-6355, doi: 10.1140/epjst/e2011-01389-y, 2011.

AMBITI DI RICERCA

Research fields:

1. Structural Dynamics;
2. Elastic-plastic structural response;
3. Nonlinear computational mechanics;
4. Shakedown problems for elastic-plastic structures;
5. Thermodynamics of dissipative materials;
6. Gradient dependent plasticity models;
7. Nonlocal plasticity;
8. Strain localization for softening materials;
9. Nonlocal damage models;
10. Cohesive-frictional interfaces