

**MARIO ALBERTO CHIORINO**  
**Curriculum Vitae and Publication List**

**EDUCATION**

- 1962 Dr. Eng., Civil Engineering, Politecnico di Torino (Technical Univ. of Turin), Italy  
Graduation with the maximum of rates with a thesis on sequential construction of a prestressed bridge and analysis of time-dependent effects
- 1952-1957 "Liceo scientifico" (high school with emphasis on science), Golden medal of the Italian Ministry of Education for graduation in the top rank

**ACADEMIC APPOINTMENTS**

- 2012- Professor Emeritus of Structural Mechanics, Politecnico di Torino
- 2010-2011 Senior Professor of Structural Mechanics, Politecnico di Torino
- 1975-2010 Full Professor of Structural Mechanics, Politecnico di Torino
- 2000-2010 Member of the Faculty Board of Ph. D. Courses in Structural Engineering, Politecnico di Torino
- 2009 Visiting Professor, short term, Indian Institute of Technology Madras, India
- 2007 Co-founder and Member of the Faculty Board of Ph. D. Courses on Conservation of Architectural Heritage
- 2000-03 Vice Dean, School of Architecture, Politecnico di Torino
- 2002 Visiting Professor, Nagoya City University, Nagoya, Japan,
- 1994-2002 Vice-Rector for Education and Admission, Politecnico di Torino
- 1992-2000 Member of the Academic Senate, Politecnico di Torino,
- 1990-1993 Co-founder, School of Doctoral Studies of the Politecnico di Torino
- 1973-1975 Associate Professor of Structural Mechanics, IUAV University of Venice
- 1968-1972 Assistant Professor of Structural Mechanics, Politecnico di Torino

**MAIN SERVICES IN ACADEMIC EDUCATION**

- 2000-2010 Course "Theory and Design of Structures", School of Architecture, Politecnico di Torino
- 2008-2010 Courses: "Investigation and analysis of structural, geotechnical and seismic behaviour of cultural heritage", "Conservation and structural enhancement of cultural heritage" within Ph. D. Courses on Conservation of Architectural Heritage
- 1985-2006 Course "Structural Rehabilitation and Structural Analysis of Masonry and Monumental Structures", School of Architecture, Politecnico di Torino
- 1975-2000 Course "Structural Mechanics", School of Architecture, Politecnico di Torino
- 1992-2000 Coordinator of the Program for Orientation and Admission for the Politecnico di Torino
- 1972-74 Course "Structural Mechanics", School of Architecture, IUAV University of Venice
- 1980-2010 Member of various recruiting commissions for academic positions in Italian Universities
- 1975-present Member of examination committees for Doctor degrees (PhD) in various Italian Universities
- 1975-present Supervisor of theses for the Master degree ("laurea") and Doctor degree ("Dottorato") in the Politecnico di Torino and in various other Universities.

## HONORS

- 2014 Honorary Member of ACI American Concrete Institute (fourth Italian member in the last 50 years)
- 2008-2013 Fellow of ACI American Concrete Institute
- 2004-present National Member, Accademia delle Scienze, Torino (Turin Academy of Sciences)
- 2000-2003 Corresp. Member, Accademia delle Scienze, Torino (Turin Academy of Sciences)

## MEMBERSHIPS IN INTERNATIONAL SOCIETIES AND COMMITTEES

- 2017 2<sup>nd</sup> International Workshop on "Durability and Sustainability of Concrete Structures" (DSCS 2018), ACI-ACI Italy Chapter and Russian Engineering Academy (REA), Russian Academy of Sciences, Moscow, Member of the Honor Committee
- 2015 1st International Workshop on "Durability and Sustainability of Concrete Structures" (DSCS 2015), ACI-ACI Italy Chapter and University of Bologna, Member of the Honor Committee
- 2004-present *fib* Fédération Internationale du Béton, Life member since 2011
- 2010-2015 ACI American Concrete Institute, Member of the International Advisory Committee (one of the two European members)
- 2014-present ACI American Concrete Institute, Member of the International Liaison Committee of ACI Committee 318 "Structural Concrete Building Code"
- 2011-present ACI American Concrete Institute, Member of the International Conferences/Conventions Committee
- 2011-2016 ACI American Concrete Institute, Chairman of Committee 209 "Creep and Shrinkage in Concrete"
- 2011-present IASS International Association for Shells and Spatial Structures
- 2015-present *fib* Commission 1, TG 1.3 "Buildings"
- 2015-present *fib* Commission 2, TG 2.1 "Serviceability models"
- 2012-2014 *fib* Commission 1, TG 1.6 "High-rise buildings"
- 2010-2014 *fib* Commission 4, "Modelling of structural behaviour and design"
- 2010-2014 *fib* Commission 4, Task Group 4.1 "Serviceability models"
- 2010-20015 IABSE International Association for Bridge and Structural Engineering
- 2010-present ICSA, International Conference on Structure and Architecture, Member of the Scientific Committee
- 2010-present International Conference "Domes in the World", Member of the Scientific Committee
- 2010-present ICSA International Conference Structures and Architecture, Member of the Scientific Committee
- 2009-present ACI American Concrete Institute, Honorary President of ACI Italy Chapter
- 2003-2009 ACI American Concrete Institute, President of ACI Italy Chapter
- 1993-present ACI American Concrete Institute, Committee 209, *Creep and Shrinkage of Concrete*, Voting Member
- 1990-present ACI American Concrete Institute
- 2008-present International Exhibition: *Pier Luigi Nervi - Architecture as Challenge* and related research program, Member of the Scientific Committee; Venues: 2010 Brussels, Venice, Rome; 2011 Turin; 2012 Copenhagen, Mantua, Salerno; 2013 EPFL Lausanne, ETH Zurich, Museum of Architecture, Wroclaw, 2015 St. Gallen, Switzerland, 2016 BME Budapest University of Technology and Economics, AIE Buenos Aires, ACI Convention, Philadelphia .
- 2004-present Revista Ingeniería de Construcción, Santiago, Chile, Member of the International Editorial Board

- 2001-2008 CONCREEP, International Conferences “Creep, Shrinkage and Durability Mechanics of Concrete and Other Quasi-Brittle Materials”, International Scientific Committee
- 2004-2007 UNI (Italian Standard Organization), National Structural Engineering Committee,  
2004-2007 UNI (Italian Standard Organization), Committee *Reinforced and Prestressed Concrete Structures*
- 2004 ARCH'04 International Conference on Arch Bridges, International Scientific Committee
- 1998-2004 *fib* Fédération Internationale du Béton, Task Group 8.2 *Constitutive Laws for High-Strength/High-Performance Concrete*
- 1968-1998 CEB Comité Euro-International du Béton
- 1979-1995 CEB Comité Euro-International du Béton, Member of the Advisory Committee
- 1986-1992 CEB Comité Euro-International du Béton, Committee for the Model Code 1990
- 1981-1995 CEB Comité Euro-International du Béton, Commission II *"Structural Analysis"*
- 1981-1995 CEB Comité Euro-International du Béton, General Task Group 9 *"Evaluation of Time-dependent Behaviour of Concrete"*
- 1970-1990 CEB Comité Euro-International du Béton, Chairman of Committee *Structural Effects of Time-dependent Behavior of Concrete*
- 1970-1984 CEB Comité Euro-International du Béton, Chairman of Editorial Group of the Manual *"Structural Effects of Time-dependent Behaviour of Concrete"*
- 1968-1978 CEB Comité Euro-International du Béton, Committee for the *Recommendations Internationales*
- 1972-1978 CEB Comité Euro-International du Béton, Committee *Evaluation and Limitation of Deflections in Concrete Structures*
- 1968-1970 CEB Comité Euro-International du Béton, Committee *Prestress Losses*
- 1968-1998 CEB Comité Euro-International du Béton, Member
- 1995-present RILEM Réunion des Laboratoires d'Essais sur les Matériaux, Technical Committee 179 CSD *Data Bank on Concrete Creep and Shrinkage*
- 1989-1999 RILEM Réunion des Laboratoires d'Essais sur les Matériaux, Technical Committee 107 CSP *Creep and Shrinkage Prediction Models*
- 1989-1999 RILEM Réunion des Laboratoires d'Essais sur les Matériaux, Technical Committees 114 CCS *Computer Programs for Creep and Shrinkage Analysis of Concrete Structures*
- 1994-1998 RILEM Réunion des Laboratoires d'Essais sur les Matériaux, Technical Committee 161 GMC *Modeling the Behavior of Concrete in Service*
- 1980-1987 RILEM Réunion des Laboratoires d'Essais sur les Matériaux, Technical Committee 69MMC *Mathematical Modeling of Creep and Shrinkage of Concrete*
- 1982-83 CICIND Comité International des Cheminées Industrielles (International Committee for Industrial Chimneys), Working Group for the CICIND Model Code for the Design of Tall Chimneys
- 1971-74 IABSE/AIPC International Association for Bridge and Structural Engineering - CEB Comité Euro-International du Béton - CECM European Convention for Structural Steel Work - FIP Fédération Internationale de la Précontrainte, Committee *Constructions mixtes acier et béton.*

## SEMINARS AND LECTURES

- 2017 Institute of Construction Science, NIIZhB Named after A. A. Gvozdev, Moscow, Keynote lecture in homage to Alexei A. Gvozdev on his 120<sup>th</sup> anniversary.
- 2016 Cornell University, Ithaca, USA, Gergley Seminar Series, Invited lecture: *“The role of structural engineering and geotechnics in the conservation of historical monuments: Case study of the survey and structural modeling for the reliability assessment of the world’s largest elliptical masonry dome at Vicoforte, Italy”*.
- 2016 BME Budapest University of Technology and Economics, International Workshop “Pier Luigi Nervi: Art and Science of Building”, Invited lecture: *“Pier Luigi Nervi’s structural art: a dialogue between engineering and architecture”*.
- 2015 International Workshop on Durability and Sustainability of Concrete Structures DSCS 2015, 1-3 October 2015, University of Bologna, Italy, Opening lecture.
- 2014 Russian Academy of Sciences (RAS), Moscow, III All-Russia (II International) Conference “Concrete and Reinforced Concrete - Glance at Future”, Invited plenary lecture: *“Analysis of structural effects of time-dependent behaviour of concrete: an internationally harmonized format”*.
- 2013-14 Politecnico di Torino, Turin, Italy, International Master Course on Structural Design of High-rise Buildings, Seminars: *“Structural effects of creep and shrinkage of concrete in High-rise Buildings”*.
- 2013 Accademia delle Scienze di Torino (Turin Academy of Sciences), Symposium “Lagrange, Matematico Europeo (Lagrange, a European Mathematician)” on the occasion of Lagrange’s 200th anniversary. Keynote lecture: *“La Meccanica strutturale da Lagrange a oggi: Il contributo della scuola torinese (Structural Mechanics from Lagrange to the present: The contribution of Turin School)”*.
- 2013 Instituto Eduardo Torroja de Ciencias de la Construcción, CSIC, International Conference on Construction Research, Keynote lecture: *“Worldwide harmonization of codes for structural concrete: the case study of creep analysis and guidelines for application to the design of high-rise buildings”*.
- 2013 ETH Swiss Federal Institute of Technology, Zurich, Invited lecture: *“Experimentation in the Work of Pier Luigi Nervi”*.
- 2013 EPFL École Polytechnique Fédérale de Lausanne, Invited lecture: *“Eladio Dieste: Birth and roots of an art of constructing with bricks”*, Série de Conférences: *“Hommage à l’histoire du génie civil”*.
- 2013 ICSA 2013, International Conference Structures and Architecture, University of Minho, Portugal, Keynote lecture: *“Pier Luigi Nervi: Architecture as Challenge”*.
- 2012 UNAM (Universidad Nacional Autónoma de México), Invited Seminar: *“Time-dependent Analysis of Concrete Structures”*.
- 2012 UNAM (Universidad Nacional Autónoma de México), Invited Seminar: *“Structural Analysis and Conservation of Historical Constructions: the Case Studies of the World Largest Elliptical Dome at Vicoforte and of Baroque Palaces in Turin”*.
- 2012 UNAM (Universidad Nacional Autónoma de México, Facultad de Arquitectura), Invited Seminar: *“Art and Science of Building in Concrete: the Work of Pier Luigi Nervi”*.
- 2012 IMCYC (Instituto Mexicano del Cemento y del Concreto), Invited Seminar: *“Efectos del Flujo Plástico y de la Contracción en las Estructuras de Concreto (Structural Effects of Creep and Shrinkage in Concrete Structures)”*.
- 2012 ACI (American Concrete Institute), Spring Convention, Dallas, TX, International Lunch Keynote lecture: *“Art and Science of Building in Concrete: the Work of Pier Luigi Nervi”*.

- 2012 ACI (American Concrete Institute), Spring Convention, Dallas, TX, Co-Moderator, International Session: “*Structural Concrete: an Art Form*”.
- 2012 Accademia delle Scienze di Torino (Turin Academy of Sciences), Invited lecture: “*Indagini e modellazioni per le verifiche statiche e gli interventi di riabilitazione su una struttura lignea storica: la volta della Sala dei Mappamondi dell’Accademia delle Scienze di Torino* (Survey and rehabilitation of an historical timber vault: the vault of the Hall of Globes at the Turin Academy of Sciences)”.
- 2011 Accademia Nazionale dei Lincei (Italian National Academy of Sciences and Letters), Keynote lecture: “*Quintino Sella: tra scienza e cultura politecnica* (Quintino Sella: between science and polytechnic culture)”, Convegno: “*Quintino Sella scienziato e statista per l’Unità d’Italia* (Quintino Sella scientist and statesman for the Unification of Italy)”.
- 2011 Escuela Técnica Superior de Arquitectura, Universidad Politécnica de Madrid, Instituto Eduardo Torroja de Ciencias de las Construcciones IETcc, Seminar: “*Structural Milestones of Architecture and Engineering*. Invited lecture “*Pier Luigi Nervi: Art and Science in Building*”.
- 2011 OGER International, Paris, Invited Seminar: “*Analysis of creep and shrinkage effects in concrete structures*”.
- 2011 MADEexpo 2011, Milan, Seminar: “*Structural design of concrete high-rise buildings*”, Keynote lecture: “*New Challenges in Height in the World – Problems concerning the analysis of time-dependent structural effects*”.
- 2011 Facoltà di Architettura Sapienza Università di Roma, with the patronage of the Accademia Nazionale dei Lincei (Italian National Academy of Sciences and Letters), Invited Seminar: “*Pier Luigi Nervi and the Vatican Audience Hall*”.
- 2011 LNEC Laboratório Nacional de Engenharia Civil, Lisbon, SHATIS’11, International Conference Structural Health Assessment of Timber Structures, Lecture: “*Survey and rehabilitation of an historical timber vault*”.
- 2011 fib Symposium, Prague: Lecture: “*Structural design of concrete high-rise buildings*”.
- 2011 CISM International Centre for Mechanical Sciences, Udine, Italy, International Course: “*Analysis of Creep and Shrinkage Effects in Concrete Structures*”; Coordinator, with Domingo J. Carreira (IIT Illinois Institute of Technology, Chicago); 8 Lectures on: “*Theoretical Fundamentals of Aging Linear Viscoelasticity*”.
- 2011 Accademia delle Scienze di Torino (Turin Academy of Sciences), Turin, Italy, International Seminar: “*Pier Luigi Nervi, Art and Science of Building*”, Coordinator, with A. Isola.
- 2011 SEWC Structural Engineers World Congress, Como, Italy, Invited lectures: “*Analysis of structural effects of time-dependent behaviour of concrete: an internationally harmonized format*”; “*Pier Luigi Nervi: Architecture as Challenge*”.
- 2010 ACI (American Concrete Institute), Spring Convention, Chicago, International Session: *Tall Buildings*, Co-chair, with H. S. Lew (NIST National Institute of Standards and Technology, USA).
- 2010 Escuela Técnica Superior de Arquitectura, Universidad Politécnica de Madrid, Invited lecture: “*Reduced scale mechanical models in 20th century structural architecture: the case study of Pier Luigi Nervi*”.
- 2010 Politecnico di Milano, Milan, Italy, Dottorato di Ricerca in Ingegneria Strutturale, Sismica e Geotecnica (Ph. D. Courses on Structural, Seismic and Geotechnical Engineering), Invited seminar: “*Time-dependent Analysis of Concrete Structures*”.
- 2009 Indian Institute of Technology Madras and Council of Scientific and Industrial Research, Structural Engineering Research Centre (SERC), Chennai, India

Invited seminars:

- “*Time-dependent Analysis of Concrete Structures*”,
- “*Modeling and Monitoring Strategies for Large Masonry Domes*”.

- 2009 ROSE SCHOOL (European School for Advanced Studies in Reduction of Seismic Risk), The Ninth International Seminar, Post Seminar Symposium: “*Strategies for the Structural Conservation of a National Monument in a Seismic Area: the Sanctuary of Vicoforte and its Large Elliptical Dome*”, Chairman.
- 2008 SACoMaTiS 2008 “on Site Assessment of Concrete, Masonry and Timber Structures”, Varenna, Italy, Invited lecture: “*Structural Assessment, Testing, Rehabilitation and Monitoring for the World’s Largest Elliptical Dome at Vicoforte*”.
- 2007 ACI American Concrete Institute, Fall Convention, Puerto Rico, Technical Session: “Structural Implications of Shrinkage and Creep of Concrete”, Co-Chair, with J. Gardner (University of Ottawa).
- 2007 Accademia delle Scienze di Torino (Turin Academy of Sciences), Seminar: “*The Stabilization of the Leaning Tower of Pisa*”, Chairman.
- 2006 Eucentre and ROSE School (European School for Advanced Studies in Reduction of Seismic Risk), University of Pavia, Seminar in Vicoforte, Italy, Chairman.
- 2005 ACI American Concrete Institute, Spring Convention, New York City, International Session: “Seismic engineering for concrete structures: Italian perspective”, Co-chair with A. Nanni (University of Miami).
- 2004 International Seminar: “International associations and harmonization of standards for structural concrete”, on the occasion of the foundation of ACI Italy Chapter and of the visit of the President of the American Concrete Institute A. Fiorato, Politecnico di Torino, Turin, Italy, Chairman.
- 2004 Accademia Nazionale dei Lincei (Italian National Academy of Sciences and Letters), Rome, Italy, Co-Chair of the Seminar in Homage to Franco Levi: “Stati di Coazione Elastica, Cento anni di sviluppo ed applicazioni (Structural effects of imposed strains and deformations, A century of Applications)”, Keynote Lecture: “*Effetti statici dei fenomeni viscosi (Structural effects of viscous phenomena)*”.
- 2004 Politecnico di Torino, Turin, Italy, International Seminar: “Modern Trends in Structural and Geotechnical Engineering”, Chairman; Keynote lecture: “*Effetti statici dei fenomeni differiti del calcestruzzo: radici storiche e nuovi orientamenti (Structural effects of time-dependent behavior of concrete: historical contributions and modern trends)*”.
- 2004 University of Florence, Italy, Seminars:
  - “*Modeling and Monitoring Strategies for Large Masonry Domes*,
  - “*Art and science in the work of Eduardo Torroja*”.
- 2004 IMTCR 2004, First Int. Conference on Innovative Materials and Technologies for Construction and Restoration, University of Lecce, Italy; Invited Lecture: “*Structural Analysis with F.E. method of a large elliptical dome*”.
- 2004 Accademia delle Scienze di Torino (Turin Academy of Sciences), Invited lecture: “*Creep effects on serviceability and stability of concrete arch bridges*”.
- 2003 Lemaire Centre for Conservation, Katholieke Universiteit Leuven, Belgium, Seminar in Vicoforte, Italy, 2003, Chairman.
- 2003 Politecnico di Milano, Milan, Italy, Advanced School in Conservation and Rehabilitation of Architectural Heritage, Seminar in Vicoforte.
- 2003 Escuela Técnica Superior de Arquitectura, Universidad Politécnica de Madrid, First International Congress on Construction History, Lecture: “*Structural Characteristics of the Elliptical Masonry Dome of the Sanctuary of Vicoforte*”.

- 2003 IUAV, University of Venice, Italy, Invited lecture, “*Conceptual design in the work of Eduardo Torroja*”.
- 2002 School of Engineering, University of Genoa, Italy, Lecture: “*Structure vs. architecture*”.
- 2002 Nagoya City University, Nagoya, Japan,  
Invited seminars:  
– “*Analysis of Creep and Shrinkage Effects in Concrete Structures*”  
– “*Modeling and Monitoring of Masonry Domes: the Case Study of the World’s Largest Oval Dome at Vicoforte, Italy*”.
- 2001 ARCH’01 - Third International Conference on Arch Bridges, École Nationale des Ponts et Chaussées, Paris, Lecture: “*Mechanism and finite element failure analysis of stone arch bridges*”.
- 2000 Accademia delle Scienze di Torino (Turin Academy of Sciences), Invited Lecture: “*Principles for a rational viscoelastic analysis of concrete structures*”.
- 1998 fib Fédération Internationale du Béton, International Course *Advanced Design of Concrete Structures*, Treviso, Italy, Lectures: “*Prediction models for creep and shrinkage; An aging linear viscoelastic approach for the evaluation of the structural effects of time-dependent behavior of concrete; Time-dependent analysis of large prestressed concrete structures*”.
- 1998 Laboratoire Central des Ponts et Chaussées - ACI American Concrete Institute Paris Chapter Workshop, Paris, Invited lecture: “*General unified approach for creep analysis of concrete structures*”.
- 1997-present (and randomly 1979-1997) twice or once a year attendance to the Spring and Fall Conventions of the American Concrete Institute in USA

In the preceding years lectures, seminars and courses were given in various national and international institutions and Italian and foreign universities; among others:

- 1993 Escuela Politécnica de Cataluna, Barcelona, Spain
- 1988 University of Kassel, Germany
- 1987 TNO, Delft, The Netherlands
- 1986 Politecnico di Milano, Milan, Italy
- 1983 AICAP, Associazione Italiana Cemento Armato e Precompresso (Italian Prestressed and Reinforced Concrete Association), Rome, Italy
- 1981 Politecnico di Milano, Milan, Italy
- 1981 University of Pavia, Italy
- 1978 AICAP, Associazione Italiana Cemento Armato e Precompresso (Italian Prestressed and Reinforced Concrete Association), Rome, Italy
- 1978 University of Leeds, England
- 1978 École Polytechnique Fédérale, Lausanne, Switzerland
- 1974 Association Française du Béton, Paris, France
- 1973 Groupe Français de Rhéologie, Paris, France
- 1973 Association Française de Recherches et d’Essais sur les Matériaux, Paris, France

with the following contributions having particular relevance:

- 1986 Northwestern University, Evanston, Illinois, USA, Fourth RILEM International Symposium on Creep and Shrinkage of Concrete: Mathematical Modelling, Invited lecture: “*Analysis of aging viscoelastic structures with elastic restraints*”.
- 1979 ACI-CEB Workshop on Creep of Concrete, American Concrete Institute - Comité Euro-International du Béton, Washington D.C., USA, Invited contribution: “*A rational approach to the analysis of the effects of creep and shrinkage in concrete structures – fundamentals for an internationally unified approach*”.

- 1975 Technical University of Denmark, Lingby, Denmark and Dansk Betonforening (Danish Concrete Association), Copenhagen, Denmark, Invited Seminars: “*Structural effects of time-dependent behaviour of concrete*”.
- 1973 CEB Comité Euro-International du Béton, International Course on Structural Concrete, directed by J. Ferry Borges, Laboratório Nacional de Engenharia Civil, Lisboa, Portugal: Invited two-week Course on “*Rheological Concepts Applied to Concrete*”.
- 1972 Госстрой (Gosstroy), NIIZhB, Research Institute of Concrete and Reinforced Concrete of the U.S.S.R., Moscow, Restricted Seminar with Professors A. A. Gvodev and S. V. Alessandrovsky on the fundamentals of aging linear viscoelasticity applied to concrete structures and on laboratory tests for creep and shrinkage.
- 1972 CEB Comité Euro-International du Béton, Plenary Session, Leningrad, U.S.S.R., Invited lecture: “*On the bases for a unified code-type approach for time-dependent analysis of concrete structures*”.

## CONTRIBUTION TO INTERNATIONAL CODES AND TECHNICAL RECOMMENDATIONS

- 2016- ACI American Concrete Institute Building Code Requirements for Structural Concrete (ACI 318-2019).
- 2013-2014 *fib* Tall buildings: Structural design of concrete buildings up to 300 m tall. State-of-art report, *fib* Bulletin 73, August 2014; also The Concrete Center, London, 2014.
- 2010-2013 *fib* Model Code for Concrete Structures 2010, Section 7.2.4 *Analysis of structural effects of time-dependent behaviour of concrete*, Ernst & Sohn, 2013.
- 2010 *fib* Textbook Structural Concrete, Section 4.1.6 *Further considerations and updates on time-dependent analysis of concrete structures*, *fib* Bulletin 52.
- 2008-present ACI American Concrete Institute Committee 209, Document ACI 209.3R, *Analysis of Creep and Shrinkage Effects in Concrete Structures*, Chairman of the Editorial Team.
- 2000-2007 ACI American Concrete Institute Committee 209, Document ACI 209.3R, *Analysis of Creep and Shrinkage Effects in Concrete Structures*, Member of the Editorial Team.
- 1996-2007 ACI American Concrete Institute Committee 209, Document ACI 209.2R *Modelling and calculation of shrinkage and creep in hardened concrete*, Cooperation in the drafting.
- 1994-2006 ACI American Concrete Institute Committee 209, Document ACI 209.1R *Guide to Factors Affecting Shrinkage and Creep of Hardened Concrete*, Cooperation in the drafting.
- 1988-1991 EUROCODE 2 Design of Concrete structures – Part 1: General rules for buildings, Draft pre-standard ENV 206, Cooperation in the drafting of Section 2.5.5 *Determination of the effects of the time-dependent properties of concrete* and of Appendix 1, *Supplementary information for the determination of the effects of the time-dependent properties of concrete*.
- 1986-1990 CEB-FIP Model Code 1990, Member of the Editorial Committee, CEB Comité Euro-International du Béton - FIP Fédération Internationale de la Précontrainte.
- 1986-1990 CEB-FIP Model Code 1990, Full drafting of Section 5.8 *Structural Effects of Time-dependent Properties of Concrete*; Cooperation in the drafting of Section 2.1 *Concrete Classification and Constitutive Relations*.
- 1970-1984 CEB Comité Euro-International du Béton, Manual “*Structural Effects of Time-dependent Behaviour of Concrete*”, Chairman of the Editorial Group and drafting of the prevailing part of the Manual.



- 1982-83 Cooperation in the drafting of *CICIND Model Code for the Design of Tall Chimneys*, CICIND International Committee for Industrial Chimneys.
- 1974-1978 Cooperation in the drafting of CEB-FIP Model Code for Concrete Structures 1978 as Member of the Editorial Committee; co-editor of Appendix e *Time-dependent Behaviour of Concrete*, Full drafting of inherent Section e.2 *Structural Effects*.
- 1964-1970 Cooperation in the drafting of CEB-FIP *International recommendations for the Design and Construction of Concrete Structures* as Member of the Editorial Committee.

### **REVIEWER FOR INTERNATIONAL JOURNALS**

Journal of the International Association for Shell and Spatial Structures IASS  
 Structural Concrete, *fib* International Federation for Structural Concrete  
 Structural Journal, American Concrete Institute  
 Materials Journal, American Concrete Institute  
 Journal of Bridge Engineering, American Society of Civil Engineers  
 Revista Ingeniería de Construcción  
 Indian Concrete Journal  
 International Journal of Architectural Heritage  
 Memorie e Note della Accademia delle Scienze di Torino

### **SCIENTIFIC CONTRIBUTIONS** (reference is made to the list of publications)

#### **Fundamentals of the theory of aging linear viscoelasticity with application to creep analysis of concrete structures**

Statement and proof of the principle of superposition in aging linear viscoelasticity for sustained geometrical actions applied at different times, with application to effective homogeneous concrete structures of averaged creep properties characterized by any type of linear aging creep model (Ref.: 3)

Physical models for creep of concrete (Ref.: 4, 11)

Interaction between creep, thermal effects and stresses imposed by jacking in large concrete ventilation ducts for tunnels (Ref.: 7, 11)

Statement and proof of the 3<sup>rd</sup> theorem of aging linear viscoelasticity concerning the effects of a delayed change in the statical system and definition of the stress redistribution function  $\xi$ , with application to effective homogeneous concrete structures of averaged creep properties characterized by any type of linear aging creep model (Ref.: 27, 29, 31)

Statement and proof of the 4<sup>th</sup> theorem of aging linear viscoelasticity concerning the effects of successive multiple delayed changes in the statical system, with application to effective homogeneous concrete structures of averaged creep properties characterized by any type of linear aging creep model (Ref.: 29, 41, 48, 71, 74, 86)

Viscoelastic analysis of concrete structures with elastic (steel) restraints (Ref.: 10, 33, 78, 86, 88, 95, 96)

Viscoelastic analysis of composite structures and sections (Ref.: 8, 16, 43)

Mathematical fundamentals of the modern theory of aging linear viscoelasticity (Ref.: 14, 15, 18, 22, 27, 31, 72)

General unified approach for viscoelastic analysis of concrete structures with examples of application to typical structures (Ref.: 31, 41, 42, 46, 48, 50, 59, 69, 71, 74, 78, 86-88, 95, 96, 107-109, 113, 114)

Design aids for viscoelastic analysis of concrete structures (Ref.: 36-39, 41, 45, 70, 86-88, 95, 96, 107-109, 114)

Viscoelastic analysis of large span prestressed concrete structures with additional delayed restraints with specific regards to the evaluation of creep effects in cantilever built bridges after final connections (Ref.: 47, 54, 58, 68, 69, 77)

Creep effects on the serviceability of concrete arch bridges with analysis of the creep induced modifications of the stress patterns consequent to natural and artificially imposed deformations (Ref.: 69, 86)

Viscoelastic analysis of large span cable-stayed bridges with concrete deck (Ref.: 86, 88, 96)

Analysis of creep and shrinkage effects in high-rise and super-tall concrete or composite buildings (Ref.: 86, 95, 96, 99, 119, 122)

Guidelines for technical recommendations and criteria for a code type formulation of creep analysis problems (Ref.: 14, 17, 21, 24, 34, 35, 56, 57, 69, 70, 78, 80, 86, 87, 90, 95, 107-109, 113, 114)

### **Physical and numerical models for structural analysis**

Physical and numerical models for the analysis of complex structures: historical notes and new frontiers (Ref.: 51, 89, 92, 94)

### **Survey of modern criteria in structural and geotechnical engineering**

State of art report on modern criteria in reliability assessment of structures with emphasis on concrete structures and soil mechanics problems (Ref.: 71, 72)

### **Seismic engineering for concrete structures**

State of art report of Italian research in seismic engineering for concrete structures (Ref.: 73)

### **Reinforced concrete tall chimneys**

Dynamic analysis of tall chimneys on deformable soils under seismic actions (Ref.: 19)

Limit state design of tall reinforced concrete chimneys (Ref.: 25)

### **Masonry structures**

Finite-element and limit analysis of masonry arches and large domes (Ref.: 44, 55, 61, 64, 75, 76)

Application of a continuum anisotropic non-linear damage constitutive model to the analysis of masonry domes (Ref.: 75, 76, 81, 101)

Modeling strategies, analysis, non-destructive testing, strengthening and monitoring of the Dome of Vicoforte (4th largest dome and 1st largest elliptical dome in the world) (Ref.: 40, 61, 64, 65, 75, 76, 81, 84, 101-104, 115, 116, 118, 124)

Dynamic identification, dynamic and seismic analysis of large masonry structures and monumental buildings (Ref.: 65, 85, 100, 101, 103, 104, 116, 120, 125)

### **Timber structures**

Reliability assessments of complex historical timber structures (100)

### **Structure and architecture; structural concrete architectural heritage, problems and strategies for documentation and conservation**

Documentation of the Italian structural concrete architectural heritage (Ref.: 52, 66, 72, 83, 89)

The work of Pier Luigi Nervi: analysis and interpretation (Ref. 52, 89, 92, 94, 97, 105, 106, 111, 112)

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