CURRICULUM VITAE
GIORGIO DIANA

Giorgio Diana received his Degree in Mechanical Engineering (MSc equivalent) from Politecnico di Milano in 1963.
1971 -2009 full professor of Applied Mechanics. 1980 -2009 full professor at Politecnico di Milano.
He has had several offices at Politecnico di Milano: Director of the Computation Centre, Director of the Department of Mechanics, member of the Administration Board, member of the Senato Accademico and co-ordinator of the Council of the Department Directors.

In December 2010 he has been appointed Professor Emeritus of Politecnico di Milano.

He is in the Scientific Committee of the Research Centre for Wind Engineering (CIRIVE), whose wind tunnel is the largest Boundary Layer Wind Tunnel in Europe. Many bridge models for recent projects worldwide have been tested in this structure: Messina Straits Bridge (Italy), Talavera de la Reina Cable-stayed Bridge (Spain), Forth Replacement crossing (UK), Adige river (Italy), Izmit Bay Bridge (Turkey), Second and Third Bosphorus Bridge (Turkey), Canakkale Bridge (Turkey).

He is in the Scientific Committee of the Fondazione Politecnico di Milano.

He is President of the Steering Committee of the Joint Research Centre (JRC) on Transportation, a research centre constituted by the Fondazione Politecnico with FS (the Railway State Company), Hitachi, Alstom and ABB with the aim of tracing the guidelines for the design of an Italian High Speed Train and then continuing research in railways (rolling stock and infrastructure).

He is the President of the Italcertifer Consortium Certification Committee (Consortium among Trenitalia (FS Group), RFI (FS Group) and some Universities). The Consortium has been created for the certification in the Rolling Stock field.

As a professor at Politecnico di Milano, he taught the following classes: Applied Mechanics, Dynamics and Vibrations of Machines, Mechanical Systems Dynamics, Actuation and Control of Mechanical Systems. All of these classes, except for Applied Mechanics, were held at the fourth year of the five-years degree in Mechanical Engineering.
Since 2010 and up to 2020 he was in charge of the course of Wind Engineering at the fifth year of the five-years degree in Mechanical Engineering.
In the nearly 50 years of activity at the Politecnico di Milano, he has been the tutor of many graduate students for their final dissertation and of many PhD Students.
During the Academic Year 2003 – 2004 he has been the Director of the Master in Wind Engineering, organised by the Politecnico di Milano and the University of Genova – prof. Giovanni Solari.

His actual main research fields are: bridges dynamics, cable dynamics, railway vehicle - infrastructure dynamic interaction and aeroelasticity problems.
He has an extensive knowledge on research and design in the fields of dynamic aspects, fluid-elasticity, aero-elasticity (vibrations of bridges and structures – cable stayed structures, high voltage overhead transmission lines), rotor-dynamics, vibration problems in mechanical engineering, railway vehicles dynamics and interaction between vehicle and infrastructures (bridges, viaduct, road, railroad).

As an expert in the field of aeroelasticity, he has been called from the first beginning as a consultant of the Stretto di Messina Society for the project of the Messina Straits Bridge: in particular, he has been the responsible for the Messina Straits Bridge aeroelastic design and for the rail and road runnability.
He was called by Cowi in the expert panel for the Stonecutters bridge design verification.
The unifying character of the research applications is the development of very powerful numerical models allowing for predictive analysis of the wind-structure interaction problems, always supported by the experimental definition of the core parameters governing the numerical models, whose reliability is thoroughly validated both by specific Wind-Tunnel procedures and by a strong tradition of full scale testing.

He is a member of IABSE (International Association of Bridge Engineers) and the chairman of Task Group 3.1 (Super-long Span Bridge Aerodynamics).
He is a member of Cigré (Conférence Internationale des Grandes Réseaux Electriques à Haute Tension) and is the Chairman of the Working Group B2-84 (Assessment of the methodologies to analyse wind induced overhead line conductors motion: applications and limitations).
He is a Member of IEEE.
He is a member of the Italian Association for Wind Engineering (ANIV) and of the Italian Association for Theoretical and Applied Mechanics (AIMETA).
He is associated to the Register of Professional Engineers, Milan.
In the field of the mechanical behaviour of conductors and fittings excited by the wind action, his researches brought to very well known publications, spanning from the first ones published together with Rodolfo Claren in 1966 to nowadays.
He is the leading author of the 'Aeolian Vibration' Chapter of the new EPRI 'Transmission Line Reference Book: Wind Induced Conductor Motion' (Orange Book).

The results of the research and activities in these fields are reported in a wide number of papers (more than 300) published on International Reviews and International Conferences Proceedings as well as Invited Papers and Keynote Lectures held at several International Conferences.
As a result of his work and achievements prof. Diana received the following awards:

- **2014 IAWE Senior Award with Davenport medal,** from IAWE – The International Association of Wind Engineers. Award Citation: "*because of many contributions to bridge and cable aerodynamics, nonlinear effects and development of super long bridges"*

- **The European Railway Award 2014** from the Community of European Railway and Infrastructure Companies (CER) and the European Rail Industry Association (UNIFE). Award motivation: *"For the significant contributions throughout his career to research and innovation in the field of rail vehicle dynamics"*

- **The CIGRE SC B2 Technical Committee Award 2012.** Award citation: "*Prof. Giorgio Diana of the renowned Politecnico di Milano, is one of the internationally acclaimed experts on structural dynamics. He is member of quite a few prestigious engineering societies, has numerous seminal publications and an intensive academic career with emphasis on teaching young engineers. With all his activities, it is more than remarkable - and we from SC B2 consider ourselves very lucky - that he has been since a long time a very active member of our community. In particular he has been Convenor of at least three working groups, which have published a well reputed Electra "trilogy" on vibration theories; these papers are considered state-of-the-art in this field and are regularly referenced."*

- **2009 Robert H. Scanlan Medal** from the American Society of Civil Engineers (ASCE) on June 26th 2009. Award citation: *"For his fundamental contributions to experimental analysis, modelling and simulations of dynamic load effects and their applications to structures under wind and other loads".*

- **ICARO Award** on November 12th 2007 from the University of La Coruna (Mecánica de Estructuras) – SPAIN (speech pronounced at the Award Offering Ceremony: "Behaviour of flexible structures excited by dynamic loads"). Award motivation: *"Investigatores que por su grado de excelencia académica, reconocido internacionalmente, hayan conseguido avances relevantes en alguno de los ámbitos de la ingegnería de estructuras"*.

He is in the Editorial Board of the Journal of Wind Engineering and Industrial Aerodynamics and he is reviewer for other Journals, among which: Engineering Structures, Journal of Bridge Engineering, Journal of Rail and Rapid Transit, IEEE Transactions on Power Delivery, Computers and Structures, Journal of Structural Engineering, Journal of Sound and Vibration, Wind and Structures.

Recent publications

1) G.Diana – La Storia del Dipartimento di Meccanica e delle sue sezioni – in: *Le radici del futuro – Storie dal Politecnico di Milano* – a cura di A.De Maio e M.C. Treu – Maggioli Editore (2022) - ISBN 978-88-916-5070-2
2) Bucca, G., Collina, A., Diana, G., ...Iacomelli, A., Spalvieri, C.- Study of dynamic buckling in droppers of high-speed railway line catenary during pantograph passage - *Ingegneria Ferroviaria* Volume 77, Issue 12, Pages 937 – 961 - December 2022
3) Zanelli, F.;Mauri, Marco;Castelli-Dezza, Francesco;Tarsitano, Davide;Manenti, Alessandra;Diana, Giorgio - Analysis of Wind-Induced Vibrations on HVTL Conductors Using Wireless Sensors – *Sensors Open Access* Volume 22, Issue 21 November 2022 - Article number 8165
4) Diana, G., Stoyanoff, S., Allsop, A., ...Svendsen, M.N., Wu, T. - IABSE Task Group 3.1 Benchmark Results. Numerical Full Bridge Stability and Buffeting Simulations - *Structural Engineering International 2022*
5) Muggiasca, S., Giappino, S., Argentini, T., ...Manenti, A., Diana, G. - Wind Resistant Design of a Very Large Observation Wheel - *Structural Engineering International* Volume 32, Issue 1, Pages 8 – 18 2022
6) Diana, G., Sabbioni, E., Somaschini, C., ...Di Mario, M., Labbadia, L. – Full-scale derailment tests on freight wagons - *Vehicle System Dynamics* Volume 60, Issue 6, Pages 1849 – 1866 2022
7) Diana, G., Manenti, A., Melzi, S. - Energy Method to Compute the Maximum Amplitudes of Oscillation Due to Galloping of Iced Bundled Conductors - *IEEE Transactions on Power Delivery* Open AccessVolume 36, Issue 5, Pages 2804 - 2813October 2021
8) Zanelli, F., Castelli-Dezza, F., Tarsitano, D., ...Bacci, M.L., Diana, G. - Design and field validation of a low power wireless sensor node for structural health monitoring - *Sensors* (Switzerland) Open AccessVolume 21, Issue 4, Pages 1 - 172 February 2021 Article number 1050
9) G.Diana et al. - IABSE Task Group 3.1 Benchmark Results. Part 2: Numerical Analysis of a 3-Degree-of-Freedom Bridge Deck Section Based on Experimental Aerodynamics - *Structural Engineering International* (TSEI) - Article ID: TSEI 1661331 - https://doi.org/10.1080/10168664.2019.1661331
10) G.Diana et al. IABSE Task Group 3.1 benchmark results. Part 1: Numerical analysis of a 2-degree-of-freedom bridge deck section based on analytical aerodynamics - *Structural*

Engineering International (TSEI) - Article ID: TSEI 163948
https://doi.org/10.1080/10168664.2019.1639480

11) G.Diana et al. - Super-Long Span Bridge Aerodynamics: First Results of the Numerical Benchmark Tests from Task Group 10 - In: Tomorrow's Megastructures, 40th IABSE Symposium - Cod Scopus 2-s2.0-85059365328 - https://re.public.polimi.it/handle/11311/1069008
12) G.Diana, S.Omarini - A non-linear method to compute the buffeting response of a bridge validation of the model through wind tunnel tests Journal of Wind Engineering and Industrial Aerodynamics – June 2020 - 201:104163 - DOI: 10.1016/j.jweia.2020.104163
13) G.Diana, D.Rocchi, M.Belloli - Wind tunnel: a fundamental tool for long-span bridge design – in book: Design, Assessment, Monitoring and Maintenance of Bridges and Infrastructure Networks - July 2020 - DOI: 10.1201/9781351038140-9
14) Krispin, H. J.; Havel, J.; Huang, J.; Garnier, J.; Kolosov, S.; Paradis, J. P.; Leblond, A.; Rawlins, C. B.; …… and Diana, G. - Modelling of Aeolian Vibrations of Bundled Conductors - in: Modelling of Vibrations of Overhead Line Conductors. Assessment of the Technology (ISBN: 978-3-319-72807-0) – Editor: G. Diana - Springer
15) Tavano, F.; Cloutier, L.; Claren, R.; Ervik, M.; Hagedorn, P.; Hardy, C.; Kern, G.; Krispin, H-J.; Möcks, L.; Rawlins, C. B.; …… D. G. Havard and D.; Diana, Giorgio - Modelling of Aeolian Vibrations of Single Conductors – in: Modelling of Vibrations of Overhead Line Conductors. Assessment of the Technology (ISBN: 978-3-319-72807-0) – Editor: G. Diana - Springer
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17) Cloutier, L.; Dulhunty, P. W.; Ervik, M.; Hagedorn, P.; Hardy, C.; Kern, G.; Krispin, H-J.; Laneville, A.; Leblond, A.; Manenti, A.; Papailiou, K. O.; Seppa, C. B. Rawlins and T. O.; Diana, G. - Modelling of Aeolian Vibrations of a Single Conductor Plus Damper - in: Modelling of Vibrations of Overhead Line Conductors. Assessment of the Technology (ISBN: 978-3-319-72807-0) – Editor: G. Diana - Springer
18) Krispin, H. J.; Havel, J.; Huang, J.; Garnier, J.; Kolosov, S.; Paradis, J. P.; Leblond, A.; Rawlins, C. B.; Cosmai, U.; Van Dyke, P.; Lilien, J. L.; Troppauer, W.; Manenti, A.; Mazzola, L.; Ruggeri, E.; Sahlani, N.; Proctor, D.; Rozé, C.; Landeira, M.; Thaddey, S.; Hardy, C.; Tong, R.; Liu, B.; Bhangor, A.; Vinogradov, A.; Araujo, T. A. Furtado and M.; Diana, G. - Modelling of Subspan Oscillations of Bundled Conductors – in: Modelling of Vibrations of Overhead Line Conductors. Assessment of the Technology (ISBN: 978-3-319-72807-0) – Editor: G. Diana - Springer
19) Diana, Giorgio; Tarsitano, Davide; Mauri, Marco; Castelli Dezza, Francesco; Zanelli, Federico; Manenti, Alessandra; Ripamonti, Francesco "A Wireless Monitoring System to Identify Wind Induced Vibrations in HV Transmission Lines" CIGRE SEERC Vienna November 2021- Contribution ID : 1129
20) Diana, G., Manenti A., et al. "Vibration Modelling of High Temperature Low Sag conductors - Self damping characterization" Cigrè B2-58 Technical Brochure n. 828 - 08 March 2021 - ISBN : 978-2-85873-533-4