

Alessandro Flora

Academic formation

- 2017 to date: Full professor of Geotechnical Engineering at DICEA, University of Napoli Federico II, Italy.
- 2003-2016: Associate Professor at University of Napoli Federico II (Italy)
- 2008: Visiting professor at the University of Rio Grande do Sul (Porto Alegre, Brazil)
- 2000-2002: Lecturer at University of Napoli Federico II (Italy)
- 1995-1999: Post-doc at University of Napoli Federico II (Italy)
- 1994: Visiting researcher at the Institute of Industrial Science (University of Tokyo, Japan)
- 1994: PhD in Geotechnical Engineering at the University Sapienza of Rome (Italy).
- 1989: Master in civil engineering at the University of Napoli Federico II (Italy)

Teaching

- “Geotechnical Works” (Master Course in Environmental Engineering)
- “Ground Improvement” (Master Course in Structural and Geotechnical Engineering)
- “Geotechnical Engineering in the preservation of built heritage” (course for graduate students)

Roles

- 2022 to date: Chairman of the technical committee TC301 (preservation of historic sites) of ISSMGE (International Society of Soil Mechanics and Geotechnical Engineering).
- From 2021 member of CIBEC (Interdepartmental Centre for the Preservation of Built Heritage) of the University of Napoli Federico II.
- From 2021 Coordinator of a post graduate course on Geotechnical Engineering for the preservation of monuments and historic sites
- 2017 to date: Member of the Advisory Editorial Board of the *Built Heritage and Geotechnics Books* series (CRC press, Taylor&Francis group)
- 2016 to date: Member of the editorial board of the *Italian Geotechnical Journal (RIG)*
- 2016 to date: Member of the board of the Doctoral school in Structural engineering, Geotechnical engineering and Seismic Risk of the University of Napoli Federico II (Italy).
- 2015 to date: Invited Expert Member of the “*European Innovation Partnership (EIP) on Raw Materials*” of the European Community.
- 2014-2020: Coordinator of the European Raw Materials Commitment Recycling “*Recycling Of Secondary raw materials for a sustainable optimization of construction processes in civil engineering*” (ROSE).
- 2012-2019: Member of the board of the Italian Geotechnical Association (AGI)
- 2012-2019 Coordinator of the AGI published issues on Ground Improvement
- 2012-2016 Secretary of the Evolution Group EG14 (ground improvement) of the TC250/SC7 (Eurocode 7 Committee).
- 2012-2016 Member of the Italian Mirror Group of the TC250/SC7
- 2008 to date: Italian representative in the technical committee TC211 (ground improvement) of ISSMGE.

Scientific production

- author of about 200 papers on the main journals and conferences related to geotechnical engineering, mechanics of granular materials, soil dynamics, geotechnical seismic isolation, preservation of monuments.
- Co-author of 2 books on jet grouting (CRC press, one in English and one in Japanese).
- Co-editor of the proc. of the Int. Conf. on Geotech. Eng. for the Preservation of Monuments and Historic Sites, 2013, CRC press
- Co-editor of the proc. of the Int. Conf. on Geotech. Eng. for the Preservation of Monuments and Historic Sites, 2022, CRC press
- Co-editor of a volume on Geotechnics and Heritage 2013, CRC press
- Co-editor of a volume on Geotechnics and Heritage: historic towers 2017, CRC press
- Co-author with C. Viggiani and R. Lancellotta of the Chapter on Foundations in the Encyclopedia of Engineering Geology (Springer)

Awards

- 2023 Thomas Telford Prize 2023 for the paper: *Relative relevance of factors affecting the electrokinetic dewatering of soft clayey soils*. Ground Improvement.
- 2020 Thomas Telford Prize 2020 for the paper: *Analysis of the coupled electro-osmotic and mech. consolidation in clayey soils*. Ground Improvement.
- 2012 Best Paper Award, Australian Research Council, for the paper: *A new approach for reducing seismic hazard on existing buildings by unusual deep soil grouting*, Int. Conf. ICGI 2012
- 2004 Highly Commendable award for the paper: *Laboratory investigation on the mechanical effectiveness of low pressure grouting of pyroclastic silty sands*. 5th Int. Conf. On Ground Improvement Techniques, Kuala Lumpur.

Keynote, SoA, Honorary and invited lectures

- (2023): A. Flora. *Less is more: sostenibilità e innovazione nel consolidamento antisismico dei terreni*. I materiali della sostenibilità: conferenza a più voci e un controcanto. University of Catania (Italy).
- (2023): A. Flora. *Liquefaction effects and innovative risk mitigation techniques*. Workshop on on Underground Structures in Liquefiable Ground, November 1-3, Shanghai (China).
- (2023): A. Flora, E. Bilotta, G. Della Ragione. *Geotechnical engineering for the preservation of cultural heritage and the possible aid of Earth Observation data*. ISPRA workshop: Copernicus for cultural heritage. Rome (Italy).
- (2023): S. Aversa, A. Flora. *Aspetti geotecnici nella tutela di alcuni siti storici e archeologici della Campania*. Giornata di studio su La cultura dell'ingegneria per la conservazione del patrimonio e del paesaggio: aspetti di metodo e prassi.
- (2022): A. Flora. *What should we do to help heritage preservation?*. International Conference on Civil Engineering in world Heritage Cities, Puebla (Mexico).
- (2022): A. Flora 3rd Kerisel Lecture (Honorary ISSMGE Lecture on the Preservation of Monuments and Historic Sites, appointed by TC301 in December 2020). *Taking care of heritage, a challenge for geotechnical engineers*. Int. Conf. on Geotech. Eng. for the Preservation of Monuments and Historic Sites, 2022 (Napoli, Italy).

- (2022): A. Flora. *Il sottosuolo di Napoli: risorsa o pericolo?*. Workshop on heritage towns, University of Toledo (Spain).
- (2021): A. Flora, F. De Silva. *Geotechnical engineering and the preservation of cultural heritage*. Invited Lecture, International webinar on geotechnical engineering towards preservation of historic structures organized by the Indian Geotechnical Society, Trichy Chapter, National Institute of Tiruchirappalli, January 7th 2021.
- (2020): Croce P., Flora A., Modoni G. *Jet Grouting Evolution, from technology to design*. Invited Lecture (delivered via remote connection), International Symposium on Evolving Jet Grouting Technology, Tokyo (Japan).
- (2019): Flora A. *Geotechnical Engineering for the preservation of historic towers*. Keynote Lecture. XVI Panamerican Conference on Soil Mechanics and Geotechnical Engineering, Cancun (Mexico).
- (2019): Flora A. *Liquefaction mitigation by Induced Partial Saturation and Horizontal Drains*. Invited Lecture, Workshop on Liquefaction Mitigation, Pavia (Italy).
- (2019): Flora A., Chiaradonna A., Lignola GP., Ramaglia G., De Sanctis L., Nappa V., Oztoprak S. *The key role of Geotechnical Engineering in the preservation of monuments*. Keynote Lecture, International Symposium on Geotechnical Aspects of Cultural Heritage, Chennai (India).
- (2019): Flora A. *Innovative Ground Improvement for liquefaction mitigation: from experimental evidences to design approaches*. Invited Lecture, International workshop on liquefaction, QuakeCore Center, Nelson (New Zealand).
- (2019): Flora A., Bilotta E., Chiaradonna A., Fasano G., Mele L., Lirer S., Pingue L., Fanti F. *Field tests to assess the effectiveness of Ground Improvement for liquefaction mitigation*. Invited Lecture, International Conference on Earthquake Geotechnical Engineering (ICEGE), Rome (Italy).
- (2018): Flora A., Bilotta E., Lirer S. *Ground improvement to mitigate liquefaction risk*. Invited lecture, Workshop on Earthquake induced liquefaction risk: holistic assessment and mitigation, 16th European Conference on Earthquake Engineering (ECEE), Thessaloniki (Greece), 18-21 June 2018.
- (2018): Flora A., Lirer S., Modoni G. *Challenges in the design of jet grouted structures*. Keynote lecture, International Conference on Deep Foundations and Ground Improvement – Urbanization and Infrastructure Development: Future Challenges, Rome (Italy) 6-8 June 2018.
- (2017): Nappa V., E. Bilotta, A. Flora (2017). *Soft grouting for seismic isolation*. Invited Lecture, 7th International Conference on Advances in Experimental Structural Engineering, 7AESE. Pavia (Italy). 6th – 8th September, 2017.
- (2017): Flora A., Modoni G., Croce P., Siepi M., Kummerer C. *What future for jet grouting? A European perspective*. Keynote Lecture, Geotechnical Special Publication, 28, GSP, pp. 358-382, 5th Int. Conference on Grouting, Deep Mixing, and Diaphragm Walls, Grouting 2017, Honolulu (USA), 9-12 July 2017.
- (2014): Flora A. *The wise use of ground improvement techniques*. Keynote Lecture, 2014 Civil Engineering Ph.D. Conference, Cluj-Napoca (Romania), 10-13 dicembre 2014.
- (2013): Flora A. *Monuments, historic sites, case histories*. General Report, Technical Committee 301, Proc of the 18th International Conference on Soil Mechanics and Geotechnical Engineering, Paris (France): 3087-3094, Delage P., Desrues J., Frank R., Puech A., Schlosser F. Ed., Presses des Ponts.
- (2013): Flora A. *Design issues for jet grouted structures*. Invited lecture al Workshop on Compensation Grouting and Jet Grouting, Paris (France).
- (2011): Flora A., Lirer S. *Interventi di Consolidamento dei terreni: tecnologie e scelte progettuali*. State of the Art Report, XXIV Italian National Geotechnical Conference on “Technological Innovation in Geotechnical Engineering”, Napoli (Italy).
- (2010): Viggiani, G.M.B., Flora A, Mandolini A., Russo G. *Excavations in the urban environment: examples from the construction of Napoli Underground*. Keynote Lecture, Proc. Int. Geotech. Conf. on Geotechnical Challenges in Megacities, Moscow, (Russia), ISBN 978-5-9902005-2-4

- (2005): Costabile M., Flora A., Lignola G., Manfredi G. *A semi probabilistic approach to the design of jet grouted umbrellas in tunneling*. Keynote Lecture, 6th Int. Conf. On Ground Improvement Techniques, Coimbra (Portugal), 261-272, ISBN: 981-05-3545-7. Singapore: CI-Premier PTE LTD.
- (1999): F. Tatsuoka F., G. Modoni, A. Flora, G.L. Jiang, L.Q. Anh Dan, M. Matsushita, J. Koseki. *Stress strain behaviour at small strains of unbounded granular materials and its laboratory tests*. Invited lecture, "Modelling and Advanced Testing of Unbound Granular Materials", pp. 17-61, Gomes Correia Ed. A.A. Balkema, Rotterdam, Olanda, Proc. Workshop at Instituto Superior Técnico – IST, Lisbon (Portugal), January 21-22, 1999, ISBN 90 5410 491 0.
- (1998): Flora, G. Modoni. *Complex testing and simple analysis of coarse grained materials*. Invited lecture, Proc. of a Workshop in Napoli on Prediction and Performance in Geotechnical Engineering, 151-216, Hevelius Ed., Benevento (Italy), ISBN 88-86977-24-7.

Funded cooperations

- Coordinator of ongoing funded research agreements with: Univ. of Tokyo (Japan), NGI (Norway), QuakeCore Centre (New Zeland), Chennai University (India).

Competitive grants

- Collector of competitive grants in Italy and Europe for more than 2M €.
- Coordinator of WP4 of the European Horizon2020 project Liquefact (overall budget ≈ 7 M€)
- PI of the PRIN project GIANO (0.7 M€)

Patents

- 2016 Patent 102016000044134, Technology to reduce waves propagations in soils and rocks.
- 2020 Patent 102020000016588, Technology and implementation of a procedure for the seismic isolation of buildings.