# *CV – Associate Prof. Irene Rocchi*

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## Employment and Education

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| 01/03/22- | Associate Professor, Department of Environmental and Resource Engineering, Technical University of Denmark (DTU). |
| 01/05/20-28/02/22 | Associate Professor, Department of Civil Engineering, DTU. |
| 01/10/16-30/04/20 | Assistant Professor, Department of Civil Engineering, DTU. |
| 01/04/15-30/09/16 | Postdoctoral researcher, Department of Civil, Environmental, Material Engineering (DICAM), University of Bologna, Italy. |
| 03/10/14 | PhD, City University of Hong Kong. Title: "An Experimental Investigation of the Influence of Weathering on Saprolitic Soils from Hong Kong" supervised by Prof. M.R. Coop. |
| 01/10/09-31/07/10 | Graduate Geotechnical Engineer, Geotechnical Consulting Group, London, UK. |
| 10/01/10 | MSc in Civil Engineering, Polytechnic of Turin, Italy. |
| 06/09/07 | BSc in Civil Engineering, University of Bologna, Italy. |

## Higher Education

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| 2010-2014 | PhD in "An Experimental Investigation of the Influence of Weathering on Saprolitic Soils from Hong Kong", City University of Hong Kong. |
| 2008-2009 | MSc in Civil Engineering, Polytechnic of Turin, Italy. |
| 2004-2007 | BSc in Civil Engineering, University of Bologna, Italy. |

## Research profile

The overarching research objective is to understand and explain the experimental soil behaviour across scales, while addressing societal challenges. The major areas of interest are: Experimental soil mechanics and characterisation - monitoring, field testing, laboratory testing with special focus on micro-characterization, sensor and testing development, hard soils/soft rocks; Multiphysics soil mechanics; Soil improvement. Water flood protection and $CO_2$ storage are key areas of application of these research outcomes.

## Research Leadership, Projects, Grants and Innovation

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| 2023-2026 | Soil is alive. Carlsberg Semper Ardens: accelerate. PI. 5MDKK. |
| 2022-2024 | $CO_2$ Seal Integrity. DHRTC Abandonment program. PI. 1.6MDKK. |
| 2022 | Hidden Dyke. CLEAN Vidensbro. Project manager for DTU. 0.4MDKK. |
| 2021-2024 | Eurotech PhD scheme, 1MDKK. CO-PI Assoc. Prof. Varvara Zania, Prof. Assaf Klar. |
| 2018-2021 | Innovation Fund Industrial PhD scheme, 1MDKK. CO-PI Assoc. Prof. Varvara Zania, Technical Director Ole Hededal, Chief Project Manager Thomas Kasper. |
| 2018-2021 | COWI Fund, 0.5MDKK. CO-PI Assoc. Prof. Varvara Zania, Technical Director Ole Hededal, Chief Project Manager Thomas Kasper. |
| 11/12/2018 | Patent No. 102016000058758 (61.U2164.12.IT.42). PCT: PCT/IB2017/053104. |
| 2016 | Task leader for Smart monitoring for safe infrastructure (INFRASAFE): Site testing, field installation and monitoring. |
| 2015-2016 | Technical responsible for Unibo geotechnical laboratory. In this role, lead among others CPT site campaign for the safeguard of Bologna leaning towers. |

## Awards, Honours and Scholarships

2022 1 of 3 Best Presentation Awards, 5th International Symposium on Cone Penetration Testing (CPT'22). Title: "Experimental procedure for checking the saturation degree of piezocone tips". Selected by scientific committee.

2016 Runner up to Poster Award, 6th Italian Conference of Researchers in Geotechnical Engineering (CNRIG). Title: "Assessing river embankment stability under transient seepage conditions". Selected by attendants vote among 100 posters.

2011 Outstanding Academic Performance Award for Research Degree Students by University Grants Committee (UGC) of Hong Kong. Title: "Experimental accuracy of the initial specific volume". The award consists in a 1,000HK$ monetary price, where 8.5HK$≈10DKK, and waiving of tuition fees for one academic year (30,000HK$). Success rate approximately 10%.

2011-2014 PhD Scholarship by University Grants Committee (UGC) of Hong Kong. The award consists in a 3 years stipend (700,000HK$) and student accommodation. Success rate approximately 5%.

## Supervision and Teaching Experience

- 4 PhD supervised: 2 completed, 1 ongoing and 2 upcoming.
- 20 MSc supervised: 16 at DTU and 4 at the University of Bologna. Degrees in: Civil Engineering, Cold Climate Engineering, Geology and Land Use, Petroleum Engineering, Sustainable Energy.
- 10 BSc and BEng supervised: 4 at DTU and 6 at the University of Bologna. Degrees in Civil Engineering, Building and Construction.
- Basic Soil Mechanics, BSc (5 ECTS, 50 students). Course responsible and lecturer (since 2017).
- Advanced Soil Mechanics, MSc (5 ECTS, 20 students). Course responsible and lecturer (since 2017).

## Service

- Organizing Committee Member: 5th International Symposium on Cone Penetration Test CPT'22 (Bologna, June 2022); 6th CNRIG Geotechnical Researchers Italian National Meeting (Bologna, September 2016).
- Technical Committee Member: 8th International Symposium on Deformation Characteristics of Geomaterials (Porto, September 2023), International Workshop on Advances in Laboratory Testing of Liquefiable Soils (North Cyprus, September 2022), 7th International Symposium on Deformation Characteristics of Geomaterials (Glasgow, June 2019).
- Chairperson at parallel session: 7th International Conference on Unsaturated Soils (Hong Kong, August 2018).
- Editor: Bulletin of Engineering Geology and the Environment (editorial board member).
- Reviewer: 10+ recognized periodicals and conferences in the field (33 verified reviews for manuscripts part of Web of Science Core Collection).
- Nominated Member: International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) Technical Committee for Laboratory Testing and In Situ Testing (TC101 and TC102).
- Corresponding Member: ISSMGE Technical Committee for Energy Geotechnics (TC308).

## Publications

Peer reviewed contributions: 24 (18 journal articles), Citations: 235, h-index: 9, Patents: 1 (Web of Science 15.01.2023)

**Journal publications in the last 5 years**

1. Gragnano C.G., Moscariello M., Cuomo S., Rocchi I. & Gottardi G. (2021) Integrating laboratory testing and field monitoring for the stability analysis of partially saturated river embankments. Italian Geotechnical Journal-Rivista Italiana Di Geotecnica, 2021(2), 35-54.
2. Kinslev E.M., Hededal O., Rocchi I. & Zania V. (2021) Mode based characterisation of swell deformations in a high plasticity Paleogene clay. Canadian Geotechnical Journal 59(6), 796-807.
3. Di Remigio G., **Rocchi I.** & Zania V. (2021) New method for a SEM-based quantitative Microstructural Clay Analysis – MiCA. *Applied Clay Science* 214, 106248.
4. Di Remigio G., **Rocchi I.** & Zania V. Scanning (2021) Electron Microscopy and clays: from sample preparation to fabric orientation quantification. *Applied Clay Science* 214, 106249.
5. Gragnano C.G., **Rocchi I.** & Gottardi G. (2021) Field Monitoring and Laboratory Testing for an Integrated Modeling of River Embankments under Transient Conditions. *Journal of Geotechnical and Geoenvironmental Engineering* 147 (9), 05021006.
6. Liu Y., Cao C., Wang Q., Zheng W., Shen J., Chen Y., Gu F., Han M. & **Rocchi I.** (2021). Utilization of bioethanol industry recycled waste for sustainable soil improvement: A win-win application. *Engineering Geology*, 289, 106192.
7. Levenberg E. & **Rocchi I.** (2020). On the thermal sensitivity of unbound granular pavement layers. *International Journal of Pavement Research and Technology*, 13(1), 32-39.
8. Liu Y., Zheng W., Wang Q., Cao C., Chang M. & **Rocchi I.** (2020) Evaluating sulfur-free lignin as a sustainable additive for soil improvement against frost resistance. *Journal of Cleaner Production*, 251.
9. Liu Y., Chang M., Wang Q., Wang Y., Cao C., Zheng W., Bao Y. & **Rocchi I.** (2020). Use of Sulfur-Free Lignin as a novel soil additive: A multi-scale experimental investigation. *Engineering Geology*, 269, 105551.
10. **Rocchi I.**[*], Gragnano C.G., Govoni L., Bittelli M. & Gottardi G. (2020) Assessing the performance of a versatile and affordable geotechnical monitoring system for river embankments. *Physics and Chemistry of the Earth*, 117, UNSP 102872.
11. Klar A., Roed M., **Rocchi I.** & Paegle I. (2019) Evaluation of the horizontal stress condition in direct simple shear by high resolution distributed fiber optic sensing. *Sensors*, 19(17). 3684.
12. Tonni L., Martinez M.F., **Rocchi I.** (2019). Recent developments in equipment and interpretation of cone penetration test for soil characterization. *Italian Geotechnical Journal-Rivista Italiana Di Geotecnica*, 2019(1), 71-99.
13. **Rocchi I.**[*], Gragnano C.G., Govoni L., Mentani A., Bittelli M., Castiglione P., Buzzi O. & Gottardi G. (2018). A new technique for deep in situ measurements of soil water retention behaviour. *Geotechnical Research*, 5(1), 3-12.