GIOVANNI MICHELE PORTA

PERSONAL INFORMATION

Place and date of birth: Milano, 29/10/1981
Phone: +39 0223996256
Email: giovanni.porta@polimi.it

PUBLICATIONS

My publications record is accessible online through my ORCID and Google Scholar profiles.

Full list of papers in scientific journals:

1. Guglielmo, M., Zambonini, D., **Porta, G.M.**, Malik, A., Tang, Fiona. H. M., & Maggi, F. (2021). Time- and depth-resolved mechanistic assessment of water stress in Australian ecosystems under the CMIP6 scenarios. *Advances in Water Resources*, *148*, 103837. https://doi.org/10.1016/j.advwatres.2020.103837
2. Sherman, T., Engdahl, N. B., **Porta, G.M.**, & Bolster, D. (2021). A review of spatial Markov models for predicting pre-asymptotic and anomalous transport in porous and fractured media. *Journal of Contaminant Hydrology*, *236*, 103734. https://doi.org/10.1016/j.jconhyd.2020.103734
3. Patani, S. E., **Porta G.M.**, Caronni, V., Ruffo, P., & Guadagnini, A. (2020). Stochastic Inverse Modeling and Parametric Uncertainty of Sediment Deposition Processes Across Geologic Time Scales. *Mathematical Geosciences*. https://doi.org/10.1007/s11004-020-09911-z
4. Baioni, E., **Porta G.M.**, Mousavi Nezhad, M., & Guadagnini, A. (2020). Assessment of turbulence effects on effective solute diffusivity close to a sediment-free fluid interface. *Stochastic Environmental Research and Risk Assessment*, *34*(12), 2211–2228. https://doi.org/10.1007/s00477-020-01877-y
5. Bianchi Janetti, E., Sherman, T., Guédon, G. R., Bolster, D., & **Porta G.M.** (2020). Upscaling of Solute Plumes in Periodic Porous Media Through a Trajectory-Based Spatial Markov Model. *Water Resources Research*, *56*(12). https://doi.org/10.1029/2020WR028408
6. la Cecilia, D., **Porta G.M.**, Tang, F. H. M., Riva, M., & Maggi, F. (2020). Probabilistic indicators for soil and groundwater contamination risk assessment. *Ecological Indicators*, *115*, 106424. https://doi.org/10.1016/j.ecolind.2020.106424
7. Dell'Oca, A., & **Porta G.M.** (2020). Characterization of flow through random media via Karhunen–Loève expansion: an information theory perspective. *GEM - International Journal on Geomathematics*, *11*(1), 18. https://doi.org/10.1007/s13137-020-00155-x
8. Sherman, T., Bianchi Janetti, E., Guédon, G. R., **Porta, G.M.**, & Bolster, D. (2020). Upscaling transport of a sorbing solute in disordered non periodic porous domains. *Advances in Water Resources*, *139*, 103574. https://doi.org/10.1016/j.advwatres.2020.103574
9. Cerroni, D., Penati, M., **Porta, G.M.**, Miglio, E., Zunino, P., & Ruffo, P. (2019). Multiscale Modeling of Glacial Loading by a 3D Thermo-Hydro-Mechanical Approach Including Erosion and Isostasy. *Geosciences*, *9*(11), 465. https://doi.org/10.3390/geosciences9110465
10. Sherman, T., Paster, A., **Porta, G.M.**, & Bolster, D. (2019). A spatial Markov model for upscaling transport of adsorbing-desorbing solutes. *Journal of Contaminant Hydrology*, *222*, 31–40. https://doi.org/10.1016/j.jconhyd.2019.02.003
11. Ceriotti, G., Russian, A., Bolster, D., & **Porta, G.M.** (2019). A double-continuum transport model for segregated porous media: Derivation and sensitivity analysis-driven calibration. *Advances in Water Resources*, *128*, 206–217. https://doi.org/10.1016/j.advwatres.2019.04.003
12. Wright, E., Sund, N., Richter, D., **Porta, G.M.** , & Bolster, D. (2018). Upscaling Mixing in Highly Heterogeneous Porous Media via a Spatial Markov Model. *Water*, *11*(1), 53. https://doi.org/10.3390/w11010053
13. Ceriotti, G., Guadagnini, L., **Porta, G.M.**, & Guadagnini, A. (2018). Local and Global Sensitivity Analysis of Cr (VI) Geogenic Leakage Under Uncertain Environmental Conditions. *Water Resources Research*. https://doi.org/10.1029/2018WR022857
14. Dell'Oca, A., **Porta G.M.**, Guadagnini, A., & Riva, M. (2018). Space-time mesh adaptation for solute transport in randomly heterogeneous porous media. *Journal of Contaminant Hydrology*, *212*, 28–40. https://doi.org/10.1016/j.jconhyd.2017.07.001

15. **Porta, G.M.**, la Cecilia, D., Guadagnini, A., & Maggi, F. (2018). Implications of uncertain bioreactive parameters on a complex reaction network of atrazine biodegradation in soil. *Advances in Water Resources*, *121*, 263–276. https://doi.org/10.1016/j.advwatres.2018.08.002
16. Colombo, I., Nobile, F., **Porta, G.M.**, Scotti, A., & Tamellini, L. (2018). Uncertainty Quantification of geochemical and mechanical compaction in layered sedimentary basins. *Computer Methods in Applied Mechanics and Engineering*, *328*, 122–146. https://doi.org/10.1016/j.cma.2017.08.049
17. Ceriotti, G., **Porta G.M.**, Geloni, C., Dalla Rosa, M., & Guadagnini, A. (2017). Quantification of CO 2 generation in sedimentary basins through carbonate/clays reactions with uncertain thermodynamic parameters. *Geochimica et Cosmochimica Acta*, *213*, 198–215. https://doi.org/10.1016/j.gca.2017.06.015
18. Sund, N. L., **Porta, G.M.**, Bolster, D., & Parashar, R. (2017). A Lagrangian Transport Eulerian Reaction Spatial (LATERS) Markov Model for Prediction of Effective Bimolecular Reactive Transport. *Water Resources Research*, *53*(11), 9040–9058. https://doi.org/10.1002/2017WR020821
19. Sund, N. L., **Porta G.M.**, & Bolster, D. (2017). Upscaling of dilution and mixing using a trajectory based Spatial Markov random walk model in a periodic flow domain. *Advances in Water Resources*, *103*, 76–85. https://doi.org/10.1016/j.advwatres.2017.02.018
20. Colombo, I., **Porta G.M.**, Ruffo, P., & Guadagnini, A. (2017). Uncertainty quantification of overpressure buildup through inverse modeling of compaction processes in sedimentary basins. *Hydrogeology Journal*, *25*(2), 385–403. https://doi.org/10.1007/s10040-016-1493-9
21. Edery, Y., **Porta G.M.**, Guadagnini, A., Scher, H., & Berkowitz, B. (2016). Characterization of Bimolecular Reactive Transport in Heterogeneous Porous Media. *Transport in Porous Media*, *115*(2), 291–310. https://doi.org/10.1007/s11242-016-0684-0
22. Ranaee, E., Riva, M., **Porta G.M.**, & Guadagnini, A. (2016). Comparative assessment of three-phase oil relative permeability models. *Water Resources Research*, *52*(7), 5341–5356. https://doi.org/10.1002/2016WR018872
23. **Porta, G.M.**, Ceriotti, G., & Thovert, J.-F. (2016). Comparative assessment of continuum-scale models of bimolecular reactive transport in porous media under pre-asymptotic conditions. *Journal of Contaminant Hydrology*, *185–186*, 1–13. https://doi.org/10.1016/j.jconhyd.2015.12.003
24. Esfandiar, B., **Porta, G.M.**, Perotto, S., & Guadagnini, A. (2015). Impact of space-time mesh adaptation on solute transport modeling in porous media. *Water Resources Research*, *51*(2), 1315–1332. https://doi.org/10.1002/2014WR016569
25. Ranaee, E., **Porta G.M.**, Riva, M., Blunt, M. J., & Guadagnini, A. (2015). Prediction of three-phase oil relative permeability through a sigmoid-based model. *Journal of Petroleum Science and Engineering*, *126*, 190–200. https://doi.org/10.1016/j.petrol.2014.11.034
26. **Porta, G.M.**, Bijeljic, B., Blunt, M. J., & Guadagnini, A. (2015). Continuum-scale characterization of solute transport based on pore-scale velocity distributions. *Geophysical Research Letters*, *42*(18), 7537–7545. https://doi.org/10.1002/2015GL065423
27. **Porta, G.M.**, Tamellini, L., Lever, V., & Riva, M. (2014). Inverse modeling of geochemical and mechanical compaction in sedimentary basins through Polynomial Chaos Expansion. *Water Resources Research*, *50*(12), 9414–9431. https://doi.org/10.1002/2014WR015838
28. Formaggia, L., Guadagnini, A., Imperiali, I., Lever, V., **Porta, G.M.**, Riva, M., et al. (2013). Global sensitivity analysis through polynomial chaos expansion of a basin-scale geochemical compaction model. *Computational Geosciences*, *17*(1), 25–42. https://doi.org/10.1007/s10596-012-9311-5
29. **Porta, G.M.**, Chaynikov, S., Thovert, J.-F., Riva, M., Guadagnini, A., & Adler, P. M. (2013). Numerical investigation of pore and continuum scale formulations of bimolecular reactive transport in porous media. *Advances in Water Resources*, *62*, 243–253. https://doi.org/10.1016/j.advwatres.2013.09.007
30. **Porta, G.M.**, Chaynikov, S., Riva, M., & Guadagnini, A. (2013). Upscaling solute transport in porous media from the pore scale to dual- and multicontinuum formulations. *Water Resources Research*, *49*(4), 2025–2039. https://doi.org/10.1002/wrcr.20183
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32. **Porta, G.M.**, Riva, M., & Guadagnini, A. (2012). Upscaling solute transport in porous media in the presence of an irreversible bimolecular reaction. *Advances in Water Resources*, *35*, 151–162. https://doi.org/10.1016/j.advwatres.2011.09.004
33. **Porta, G.M.**, Perotto, S., & Ballio, F. (2012). A space-time adaptation scheme for unsteady shallow water problems. *Mathematics and Computers in Simulation*, *82*(12), 2929–2950.

https://doi.org/10.1016/j.matcom.2011.06.004
34. **Porta, G.M.**, Perotto, S., & Ballio, F. (2012). Anisotropic mesh adaptation driven by a recovery-based error estimator for shallow water flow modeling. *International Journal for Numerical Methods in Fluids*, *70*(3), 269–299. https://doi.org/10.1002/fld.2688
35. Radice, A., **Porta, G.M.**, & Franzetti, S. (2009). Analysis of the time-averaged properties of sediment motion in a local scour process. *Water Resources Research*, *45*(3). https://doi.org/10.1029/2007WR006754
36. Radice, A., Ballio, F., & **Porta, G.M.** (2009). Local scour at a trapezoidal abutment: sediment motion pattern. *Journal of Hydraulic Research*, *47*(2), 250–262. https://doi.org/10.3826/jhr.2009.3356

Conference papers:

1. Biraghi, C.A., Ceriotti, G., **Porta, G.M.**, Tadi, M. (2019) Development and implementation of a quantitative multi-metrics methodology to characterize urban permeability. Proceedings of the Annual International Conference on Architecture and Civil Engineering, pp. 134-144. https://doi.org/10.5176/2301-394X_ACE19.588
2. Guadagnini A., Guadagnini L., **Porta G.M.**, Cerroni D., Formaggia L., Scotti A., Zunino P., Ruffo P. Modelling the feedback between glaciation, geochemical and mechanical compaction on sedimentary basin evolution *Offshore Mediterranean Conference and Exhibition 2017*, Ravenna, Italy, 29-31 March 2017.
3. Esfandiar, B., **Porta, G.M.**, Perotto, S., & Guadagnini, A. (2015). Anisotropic Mesh and Time Step Adaptivity for Solute Transport Modeling in Porous Media. In S. Perotto & L. Formaggia (Eds.), *New Challenges in Grid Generation and Adaptivity for Scientific Computing* (Vol. 5, pp. 231–260). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-06053-8_12
4. Ruffo, P., **Porta G.M.**, Colombo, I., Scotti, A., & Guadagnini, A. (2014). Global Sensitivity Analysis of Geochemical Compaction in a Sedimentary Basin. Presented at the First EAGE Basin & Petroleum Systems Modeling Workshop, Dubai, United Arab Emirates. https://doi.org/10.3997/2214-4609.20143789
5. Ranaee, E., **Porta, G.M.**, Riva, M., & Guadagnini, A. (2014). Investigation of Saturation Dependency of Oil Relative Permeability during WAG Process through Linear and Non-linear PCA. Presented at the ECMOR XIV - 14th European Conference on the Mathematics of Oil Recovery, Catania, Sicily, Italy. https://doi.org/10.3997/2214-4609.20141800
6. Scrofani, G., Ruffo, P., **Porta, G.M.**, Riva, M., Lever, V., Scotti, A., & Imperiali, I. (2013). Preliminary Analysis of Diagenetic Effects on Basin Scale Overpressure Dynamics. In *International Petroleum Technology Conference*. Beijing, China: International Petroleum Technology Conference. https://doi.org/10.2523/16690-ABSTRACT