Publications

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Names marked by superscripts indicate as follows: a – Master's student mentored, b – Ph.D. student mentored, c – postdoctoral researcher mentored, d – research scientist collaborator, and e – Undergraduate student mentored.

Refereed Full Papers - in Review

1. **Prigiobbe, V.**, Han, H., and Axe, L. (202X). Chemical and mineralogical stability of manganese oxide coating during brine treatment. Submitted to *Environmental Science and Technology*.
2. Caulfield[b], B., Roberts, M.[e], and **Prigiobbe, V.**, (202X). Effect of nickel, copper, and zinc on the precipitation kinetics and composition of Ca-carbonates. Submitted to *Chemical Engineering Journal*.
3. Kriebel, M.[a], Liu[b], T., Noordhoek, R.[a], Staas, L.[a], Ramirez-Marquez, J. E., **Prigiobbe, V.** (202X). Holistic approach based on public acceptance and hydrological modeling to select green infrastructure for flooding mitigation. In review in the *Journal of Hydrology*

Refereed Full Papers - Published

1. **Prigiobbe, V.**, Bourgeois, F., Schaef, H. T., and Zhang, S. (2023) Editorial: CO_2 Mineralization: A Carbon Storage Technology for a Sustainable Future. In press in *Frontiers in Climate*.
2. Datta, S. S., Battiato, I., Fernø, M., Juanes, R., Parsa, S., **Prigiobbe, V.**, Santanach-Carreras, E., Song, W., Sinton, D. (2023) Lab on a chip for a low-carbon future. In press in *Lab on a Chip*.
3. Abraham, J.[d], **Prigiobbe, V.**, Abimbola, T., Christodoulatos, C., (2023). Integrating biological and chemical CO_2 sequestration for bioproducts generation. In press in *Frontiers in Climate*.
4. Caulfield[b], B., Abraham, J., Christodoulatos, C., **Prigiobbe, V.**, (2022). (Invited) Enhanced precipitation of magnesium carbonates using carbonic anhydrase. *Nanoscale - Royal Society of Chemistry - Special Issue on Negative Emissions Technologies*, 14, 13570-13579.
5. Zhang[b], D., Liu[b], T., and **Prigiobbe, V.** (2022) Enhanced solute transport in porous media due to pH-dependent adsorption and transverse dispersion. *Advances in Water Resources*, 164, 104195.
6. Zhang[b], D. and **Prigiobbe, V.** (2022) Influence of salinity change on the transport behaviour of Escherichia coli through quartz sand. *Journal of Contaminant Hydrology*, 248, 104016.
7. Su[b], X., Belvedere[a], P., Tosco, T., and **Prigiobbe, V.** (2022) Studying nuisance flooding due to groundwater in a coastal urban area. *Urban Climate*, 43, 101164.
8. **Prigiobbe, V.**, Dawson, C., Hu, Y., Sharif, H., and Tahvildari, N. (2022) Editorial: Coastal flooding: modeling,monitoring, and protection systems. *Frontiers in Climate*, 3, 830946.
9. Zhang[b], D., Li[b], Q., and **Prigiobbe, V.** (2022) Population balance modeling of homogeneous viral aggregation. *Chemical Engineering Science*, 247, 117035.
10. Liu[b], T., Jagupilla, S., Ramirez-Marquez, J., and **Prigiobbe, V.** (2021). Combining a statistical model with machine learning to predict groundwater flooding (or infiltration) into sewer networks. *Journal of Hydrology*, 603, Part B, 126916.
11. Li[b], Q. and **Prigiobbe, V.** (2021) Measuring and modeling nanoparticle transport by foam in porous media. *Journal of Contaminant Hydrology*, 243, 103881.
12. Ye[b], Z. and **Prigiobbe, V.** (2020). Transport of produced water through reactive porous media. *Water Research*, 185, 116258.
13. Li[b], Q. and **Prigiobbe, V.** (2020). Studying the generation of foam in the presence of nanoparticles using a microfluidic system. *Chemical Engineering Science*, 215, 115427.

14. Shi[c], Q., Meng, X., and **Prigiobbe, V.** (2020). Mechanistic study of radium adsorption on goethite. *Journal of Physical Chemistry C*, 124, 1, 805–814.

15. Su[b], X., Liu[b], T., Beheshti[a], M., and **Prigiobbe, V.** (2019). (Invited) Relationship between infiltration, sewer rehabilitation, and groundwater flooding in coastal urban areas. *Environmental Science and Pollution Research*, 27, 14288-–14298.

16. Ye[b], Z., Abraham[c], J., Christodoulatos, C., and **Prigiobbe, V.** (2019). Mineral carbonation for carbon utilization in microalgae culture. *Energy & Fuels*, 339, 8843–8851.

17. Zhang[b], D., Zabarankin, M. and **Prigiobbe, V.** (2019). Modeling salinity-dependent transport of viruses in porous media. *Advances in Water Resources*, 127, 252–263.

18. Li[b], Q. and **Prigiobbe, V.** (2019). Modeling nanoparticle transport in porous media in the presence of a foam. *Transport in Porous Media*, 131, 269—288.

19. Liu[b], T., Su[b], X., and **Prigiobbe, V.** (2018) Groundwater-sewer interaction in urban coastal areas. *Water* 10(12), 1774.

20. Shi[c], Q., Sterbinsky, G.E., **Prigiobbe, V.**, and Meng, X. (2018) Mechanistic study of lead adsorption on activated carbon. *Langmuir*, 34 (45) 13565–13573.

21. Li[b], Q. and **Prigiobbe, V.** (2018) (Invited) Numerical simulations of the migration of fine particles through porous media. *Transport in Porous Media* 122 (3), 745-–759.

22. Ye[b], Z. and **Prigiobbe, V.** (2018) Effect of ionic strength on barium transport in porous media. *Journal of Contaminant Hydrology* 209, 24–32.

23. **Prigiobbe, V.** (2018) Estimation of nucleation and growth parameters from in situ Raman spectroscopy in carbonate systems. *Journal of Environmental Chemical Engineering* 6 (1), 930–936.

24. Wang[c], Q., **Prigiobbe, V.**, Huh, C., Bryant, S.L. (2017) Effect of an electrolyte on adsorption of calcium onto superparamagnetic nanoparticles functionalized with polyacrylic acid (PAA). *Energies* 10(223):1–15.

25. **Prigiobbe, V.**, Worthen, A.J., Johnston, K.P., Huh, C., and Bryant, S.L.. (2016). Transport of nanoparticle-stabilized CO_2-foam in porous media. *Transport in porous media* 111 (1), 265–285.

26. **Prigiobbe, V.**, Ko[c], S., Huh, C., and Bryant, S.L. (2015) Measuring and modeling the magnetic settling of superparamagnetic nanoparticle dispersions. *Journal of Colloid and Interface Science* 447, 58–67.

27. **Prigiobbe, V.**, Bryant, S.L. (2014) pH-Dependent Transport of Metal Cations in Porous Media. *Environmental Science and Technology*, 48 (7), 3752–3759.

28. **Prigiobbe, V.**, Hesse, M.A., and Bryant, S.L. (2014) Enhanced transport of heavy metals due to a CO_2-acidified brine.*Energy Procedia* 63 3261–3267.

29. **Prigiobbe, V.**, Suarez-Negreira, A., Lim, D.-H., Wilcox, J. (2013) Density functional theory study of the interaction of water with olivine. *Energy Procedia* 37 5875–5883.

30. **Prigiobbe, V.**, Suarez-Negreira, A., Wilcox, J. (2013) Interaction between olivine and water based on density functional theory calculations. *The Journal of Physical Chemistry C* 117, 21203–21216.

31. **Prigiobbe, V.**, Hesse, M.A., Bryant, S.L. (2013) Hyperbolic theory for pH-dependent sorption in reactive transport in porous media. *SIAM Journal on Applied Mathematics* 73(5), 1941–1957.

32. **Prigiobbe, V.**, Mazzotti, M. (2013) Precipitation of $MgCO_3$ at elevated temperature and CO_2 pressure. *Chemical Engineering Journal* 223 755–763.

33. **Prigiobbe, V.**, Hesse, M.A., Bryant, S.L. (2012) Fast strontium transport induced by hydrodynamic dispersion and pH-dependent sorption. *Geophysical Research Letters*. 39 L18401.

34. Kirchofer, A., Brandt, A., Krevor, S., **Prigiobbe, V.**, Wilcox, J. (2012) Impact of alkalinity sources on the life-cycle energy efficiency of mineral carbonation for CO_2 storage. *Energy and Environmental Science* 5 (9) 8631–8641.

35. **Prigiobbe, V.**, Hesse, M.A., Bryant, S.L. (2012) Anomalous reactive transport in the framework of the theory of chromatography, *Transport in Porous Media* 93 (1) 127–145.

36. **Prigiobbe, V.**, Mazzotti, M. (2011) Dissolution of olivine in the presence of oxalate, citrate, and CO_2 at 90°C and 120°C. *Chemical Engineering Science* 66 (24) 6544–6554.

37. **Prigiobbe, V.**, Giulianelli, M. (2011) Quantification of sewer leakage using a continuous tracer method. *Water Science and Technology* 64 (1) 132–138.

38. **Prigiobbe, V.**, Hänchen, M., Werner, M., Baciocchi, R., Mazzotti, M. (2009). Mineral carbonation process for CO_2 sequestration. *Energy Procedia* 1 (1) 4885–4890.

39. **Prigiobbe, V.**, Hänchen, M., Mazzotti, M. (2009). Analysis of the effect of temperature, pH, CO_2 pressure and salinity on the olivine dissolution kinetics. *Energy Procedia* 1 (1) 4881–4884.

40. Baciocchi, R., Costa, G., Polettini, A., Pomi, R. **Prigiobbe, V.** (2009). Comparison of different reaction routes for carbonation of APC residues. *Energy Procedia* 1 (1) 4851–4858.

41. **Prigiobbe, V.**, Costa, G., Baciocchi, R., Hänchen, M., Mazzotti, M. (2009). The effect of CO2 and salinity on olivine dissolution kinetics at 120°C. *Chemical Engineering Science* 64 (15) 3510–3515.

42. **Prigiobbe, V.**, Giulianelli, M. (2009). Quantification of sewer system infiltration using $\delta^{18}O$ hydrograph separation. *Water Science and Technology* 60 (3) 727–735.

43. **Prigiobbe, V.**, Polettini, A., Baciocchi, R. (2009). Gas-solid carbonation kinetics of Air Pollution Control residues for CO_2 storage. *Chemical Engineering Journal* 148 (2-3) 270–278.

44. Hänchen, M., **Prigiobbe, V.**, Baciocchi, R., Mazzotti, M. (2008). Precipitation in the Mg-carbonate system - effects of temperature and CO_2 pressure. *Chemical Engineering Science* 63 (4) 1012–1028.

45. Baciocchi, R., Polettini A., Pomi, R., **Prigiobbe, V.**, v. Zedwitz, V., Steinfeld, A. (2006). CO_2 sequestration by gas-solid carbonation of APC residues. *Energy & Fuels* 20 1933–1940.

46. Hänchen, M., **Prigiobbe, V.**, Storti, G., Steward, T. M., Mazzotti, M. (2006). Dissolution kinetics of fosteritic olivine at 90-150°C including effects of the presence of CO_2. *Geochimica et Cosmochimica Acta* 70 (17) 4403–4416.

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48. Giulianelli, M., Mazza, M., **Prigiobbe, V.**, Russo, F. (2004) Assessing exfiltration from a sewer by slug dosing of a chemical tracer (NaCl). *NATO Science Series IV Earth and Environmental Sciences* 43 351–362.

49. Giulianelli M., **Prigiobbe, V.**, Succhiarelli C. (2004). Nuovi metodi per quantificare infiltrazioni ed exfiltrazioni nelle fognature urbane (Novel methods to quantify infiltrations and exfilitrations in urban sewers). *Geologia dell'Ambiente*, 4 21–26.

50. **Prigiobbe, V.**, Giulianelli, M., Paoluzzi, M. (2003). Fenomeni di infiltrazione ed exfiltrazione nelle reti di fognatura urbana, bacini sperimentale a Roma (Phenomena of infiltrations and exfiltrations in urban sewer networks, experimental catchments in Rome). *L'ACQUA* 6 41–49.

Books and Book Chapters

1. Ye[b], Z. and **Prigiobbe, V.** (2021). Transport of Earth Alkaline Elements in Produced Water through Reactive Porous Media. Published in: *Solid-Liquid Separation Technologies: Applications for Produced Water.* Ogunsola, O. and Gamwo, I (eds.). CRC Press. (Invited and peer-reviewed)

2. Huh, C., Daigle, H., **Prigiobbe, V.**, Prodanović, M. (2019) Practical Nanotechnology for Petroleum Engineering. CRC Press.

3. **Prigiobbe, V.**, Giulianelli, M. (2010) Tests and field applications of methods in Italy (Eds. Ellis, B. and Bertrand-Krajewski, J.K.) in *Assessing Infiltration and Exfiltration on the Performance of Urban Sewer Systems APUSS*. IWA publishing.

Idea Disclosure

1. **Prigiobbe, V.**, Meng, X. (2015). Reactive propping agent to immobilize heavy metals and radionuclides in the subsurface during hydraulic fracturing. Invention Disclosure ID: FY16-002.

2. **Prigiobbe, V.**, Li*, Q. (2017). Functionalized nanoparticle-stabilized foam for contaminated site remediation. Invention Disclosure ID: FY18-030.

Magazine and News

1. **Prigiobbe, V.** (2018) *What's next for Hoboken's water mains.* Interview on PIX11 News on the 30th of August 2018.

2. **Prigiobbe, V.** and Fassman-Beck, E. (2016) *Aging infrastructure in Hoboken (NJ).* Fox News on the 28th of February 2016.

3. **Prigiobbe, V.**, Hesse, M., Bryant, S.L. (2014). Breaking waves. International Innovation, (163), 34–36.

Refereed Conference Publications and Reports

1. Zhang[b], D. and **Prigiobbe, V.** (2020) Studying the effect of salinity and tide on the fecal bacteria transport within Hudson River Estuary sediments. Section VIII: 1-24 pp. In S.H. Fernald, D.J. Yozzo and H. Andreyko (eds.), Final Reports of the Tibor T. Polgar Fellowship Program, 2019. Hudson River Foundation.
2. Ye[b], Z., Abraham, J., Christodoulatos, C., and **Prigiobbe, V.** (2018) Metastable Hydrated Carbonates From a Brine to Supply Carbon to Microalgae Harvested for Biofuel Production. The 14^{th} Greenhouse Gas Control Technologies (GHGT) conference, 21–26 October 2018, Melbourne, Australia.
3. Liu[b], T., Beheshti[a], M., Su[b], X., and **Prigiobbe, V.** (2018) Sewer-groundwater Interaction in Urban Coastal Areas. 11^{th} International Conference on Urban Drainage Modelling (UDM2018) conference, , 23–26 October 2018, Palermo, Italy.
4. **Prigiobbe, V.**, Ko[c], S., Wang[c], Q., Huh, C., and Bryant, S.L. (2015) Magnetic Nanoparticles for Efficient Removal of Oilfield "Contaminants": Modeling of Magnetic Separation and Validation. *SPE International Symposium on Oilfield Chemistry*, The Woodlands, Texas, USA, 13-15 April 2015.
5. Wang, Q.[c], **Prigiobbe, V.**, Huh, C., and Bryant, S.L., Bennetzen, M.V. and Mogensen, K. (2014) Removal of divalent cations from brine using selective adsorption onto magnetic nanoparticles. *8th International Petroleum Technology Conference (IPTC)*, Kuala Lumpur, Malaysia, December 10-12, 2014.
6. **Prigiobbe, V.**, Hesse, M.A., and Bryant, S.L. (2014) Enhanced transport of heavy metals due to a CO_2-acidified brine.*Energy Procedia* 63 3261–3267.
7. **Prigiobbe, V.**, Suarez-Negreira, A., Lim, D.-H., Wilcox, J. (2013) Density functional theory study of the interaction of water with olivine. *Energy Procedia* 37 5875–5883.
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10. Baciocchi, R., Costa, G., Polettini, A., Pomi, R., **Prigiobbe, V.** (2009). Comparison of different reaction routes for carbonation of APC residues. *Energy Procedia* 1 (1) 4851–4858.
11. **Prigiobbe, V.**, Succhiarelli, C., Giulianelli, M. (2005) Nuovi metodi per quantificare le infiltrazioni ed exfiltrazioni. *Proceeding of the Conference on the Ecosystem in Rome, Accademia Nazionale dei Lincei.* 218, 345. Rome, Italy, 14^{th}–16^{th} April.
12. Giulianelli, M., Mazza, M., **Prigiobbe, V.** Russo, F. (2003) Assessing exfiltration in a urban sewer by slug dosing of chemical tracer (NaCl). *Proceeding of NATO ARW on Enhancing Urban Environment.* Rome, Italy, 5^{th}–9^{th} November.