

Martina Dal Bello, PhD

dalbello@mit.edu

<https://martinadalbello.com/>

I am a microbial ecologist and I explore how the environment structures microbial communities.

Employment history and Education

Research Scientist , Massachusetts Institute of Technology, Dept. of Physics, Cambridge, MA, USA (Advisor: Prof. Jeff Gore)	10/2021- present
Postdoctoral Associate , Massachusetts Institute of Technology, Dept. of Physics, Cambridge, MA, USA (Advisor: Prof. Jeff Gore)	10/2016 – 09/2021
Postdoctoral Researcher , Università di Pisa, Dept. of Biology, Pisa, Italy (Advisor: Prof. Lisandro Benedetti-Cecchi)	05/2014 – 08/2016
Ph.D. Biology (Marine Ecology), Università di Pisa, Pisa, Italy (Advisor: Prof. Lisandro Benedetti-Cecchi)	2014
M.Sc. Marine Biology , Università di Pisa, Pisa, Italy (Thesis advisor: Prof. Lisandro Benedetti-Cecchi)	2010
B.Sc. Environmental Sciences , Università degli Studi di Genova, Genova, Italy (Thesis advisors: Prof. Riccardo Cattaneo-Vietti, Dr. Paolo Guidetti)	2008

Awards and Honors

Finalist Swiss National Science Foundation Starting Grant	2022
Best talk , Stochastic Models and Experiments in Ecology and Biology	2021
Best talk , ISME Unity in Diversity Symposium	2021
Marie Skłodowska-Curie Actions Seal of Excellence for MSCA Global Individual Fellowship	2018
Postdoctoral Fellowship , Università di Pisa	2014
PhD Fellowship , Università di Pisa - Regione Toscana	2011

Leadership and Outreach experience

SOC APS March Meeting 2024 , Ecological Dynamics Session, Minneapolis, US	2024
SOC Microbial community ecology: bridging models & observations , MPI Evol Biology, Plön, Germany	2023
LEAPS Fellow - Leadership and Professional Strategies and Skills Training, MIT	2021
Kaufman Teaching Certificate Program (KTCP) Fellow , MIT	2020
Scientific advisor Crowdfight , non-profit facilitating scientific collaboration	2020-present
Board member MIT POWER , Postdoctoral Association of Women Engaged in Research	2020-present
Board member MITaly , Italian Association at MIT	2018-present
SOC Evolutionary and Ecological Systems Biology (EESB) Talks , Virtual	2020-2021
LOC 11th International Temperate Reefs Symposium (ITRS) , Pisa, Italy	2016
SOC 11th International Temperate Reefs Symposium (ITRS) , Pisa, Italy	2016
Representative Post-doc Association , Università di Pisa, Dept. of Biology	2015-2016
Founding member Successione Ecologica – outreach & citizen science initiatives	2013-2016

Teaching, Scientific advising, and Mentoring

Instructor Training Program in <i>Quantitative Biology and Ecology</i> , Serrapilheira/ICTP-SAIFR	2022
Instructor & teaching co-facilitator <i>LEAdership and Professional Strategies and Skills Training</i> (LEAPS-8.396, 8.3897), MIT	2022
Instructor QBio Summer Research Course <i>Microbial Interactions</i> (30h), KITP, UCSB	2021
Teaching Assistant <i>Ecology and Biodiversity of Rocky Shores</i> , Master in Marine Biology, Università di Pisa	2016
Teaching Assistant <i>Marine Biology and Ecology</i> , Master in Marine Biology, Università di Pisa	2011-2015
Teaching Assistant <i>Ecology</i> , Bachelor in Biology, Università di Pisa	2011-2015

Scientific advising

Graduate advisees

Tomas Lio Grudny, Rotating Graduate Student (with Jeff Gore), MIT	2023
Aarshi Jain, Rotating Graduate Student (with Jeff Gore), MIT	2023

Shreyansh Umale, Graduate Student (with Jeff Gore), MIT	2022
Nicholas Nolan, Rotating Graduate Student (with Jeff Gore), MIT	2021
Ariel O'Neil, Rotating Graduate Student (with Jeff Gore), MIT	2018

Undergraduate advisees

Abheepsa Nanda, Undergraduate summer Intern (with Jeff Gore), MIT	2022
Mikail Khona, Undergraduate summer Intern (with Jeff Gore), MIT	2017
Letizia Borelli, Master Student Thesis Project (with Lisandro Benedetti-Cecchi), Università di Pisa	2015
Luca Bertolacci, Bachelor Student Intern (with Lisandro Benedetti-Cecchi), Università di Pisa	2015
Selene Rabusca, Bachelor Student Intern (with Lisandro Benedetti-Cecchi), Università di Pisa	2013
Letizia Borelli, Bachelor Student Thesis Project (with Lisandro Benedetti-Cecchi), Università di Pisa	2012

Career mentoring

~25 graduate and undergraduate students

Scientific Reviewing activities**Peer-reviewed journals**

Nature Communications, eLife, Evolution, Ecology Letters, ISME Communications, ISME, The American Naturalist, Microbial Ecology, Scientific Reports, Current Opinion in Microbiology, iScience, Marine Ecology Progress Series, Methods in Ecology and Evolution, Marine Biology, Journal of Experimental Marine Biology and Ecology, PLOSone, Journal of Phycology, mSystem, Journal of Sea Research, MDPI Microorganisms, MDPI International Journal of Environmental Research and Public Health, Ecosphere, mBio

Grant agencies

Kansas NSF EPSCoR (Established Program to Stimulate Competitive Research)	2022
---	------

Invited Talks and Seminars

23. GRC Stochastic Physics in Biology: Bridging Theory with Experiment at All Scales. Ventura, CA, USA	Upcoming 2025
22. Ecological dynamics of microbial communities: new approaches. University of Chicago, IL, USA	Upcoming 2024
21. Population Dynamics Virtual Seminars. Friedrich Schiller University Jena	2024
20. Reimagining Ocean Ecology Workshop. Venice, Italy	2024
19. Advanced School on Quantitative Principles in Microbial Physiology, ITCP, Trieste, Italy	2023
18. Marine and Coastal Science Department Seminar, Rutgers University	2023
17. Boston University Systems Biology Seminar, Boston University, MA, USA	2023
16. American Physical Society (APS) Meeting, Las Vegas, USA	2023
15. Ecology and Evolutionary Biology Department Seminar, Yale University, CT, USA	2023
14. Ecology & Evolution Department Seminar, The University of Chicago, IL, USA	2023
13. Environmental Systems Science Department Colloquium, ETH Zürich, Switzerland	2023
12. EcoEncontros Seminar Series, IB-USP, Sao Paulo, Brazil	2022
11. AtlantECO meeting, Sesimbra, Portugal	2022
12. Eawag (ETH), Dübendorf, Switzerland	2022
11. University of Padova, Padova, Italy	2022
10. Huddle Eco-evolutionary Dynamics of Microbial Communities Across Scales, ICTP, Trieste, Italy	2022
9. Darwin group meeting, MIT, Cambridge, MA, USA	2022
8. The Ecology and Evolution of Microbial Communities, KITP, UCSB, Santa Barbara, CA, USA	2021
7. Workshop on Limits to Diversity Assembly, ICTP, Trieste, virtual	2020
6. EESB Talks Seminar Series, Virtual	2020
5. Finch Therapeutics Internal Seminar Series, Finch Therapeutics, Somerville, MA, USA	2020
4. Marine Science Center Seminar Series, Northeastern University, MSC, Nahant, MA, USA	2020
3. Physics of Living Systems Short Talks Seminar Series, MIT, Cambridge, MA, USA	2018
2. Biology Seminar Series, WHOI, Woods Hole, MA, USA	2018
1. Environmental Science Seminar Series at Parsons Lab, MIT, Cambridge, MA, USA	2018

Contributed Talks at conferences

15. American Physical Society (APS) Meeting, Minneapolis, USA	Upcoming 2024
14. MEEHubs, Boston, MA, USA	2024
13. PriME Annual Meeting, Virtual	2021
12. Stochastic Models and Experiments in Ecology and Biology, Venice and virtual	2021

- | | |
|--|------|
| 11. ISME #UnityInDiversity Symposium, Virtual | 2020 |
| 10. MIT Biophysics Retreat, Falmouth, MA, USA | 2019 |
| 9. 12th International Temperate Reef Symposium (ITRS), Hong Kong, China | 2019 |
| 8. XVIII Congresso Società Italiana di Ecologia (SIeE), Cagliari, Italy | 2018 |
| 7. <i>Keynote talk</i> , 6th Annual Winter q-bio Meeting, Maui, HI, USA | 2018 |
| 6. Ecological Society of America (ESA) Annual Meeting, Portland, OR, USA | 2017 |
| 5. 11th International Temperate Reef Symposium (ITRS), Pisa, Italy | 2016 |
| 4. 50th European Marine Biology Symposium (EMBS), Helgoland, Germany | 2015 |
| 3. Aquatic Biodiversity and Ecosystems (ABEC), Liverpool, UK | 2015 |
| 2. XIII Congresso Società Italiana di Ecologia (SIeE), Ancona, Italy | 2013 |
| 1. XII Congresso Società Italiana di Ecologia (SIeE), Alessandria, Italy | 2012 |

Publication list

Publications in peer-reviewed scientific journals

20. Madirolas G., Al-Asmar A., Gaouar L., Marie-Louise L., Garza Enrique G., Khona M., **Dal Bello M.**, Ratzke C., Gore J., Pérez-Escudero, A. (2023). A taste for numbers: *Caenorhabditis elegans* foraging follows a low-dimensional rule of thumb. *Communications Biology*, 6: 841. doi:[10.1038/s42003-023-05220-3](https://doi.org/10.1038/s42003-023-05220-3)
19. Abreu A. *, **Dal Bello, M. ***, Bunse, C., Pinhassi, J., & Gore, J. (2023). Warmer temperatures favor slower-growing bacteria in natural marine communities. *Science Advances*, 9, eade835. doi: [10.1126/sciadv.ade8352](https://doi.org/10.1126/sciadv.ade8352).
* Equal contribution
18. **Dal Bello, M.**, Lee, H., Goyal, A., & Gore, J. (2021). Resource-diversity relationships in bacterial communities reflect the network structure of microbial metabolism. *Nature Ecology & Evolution*, 5, 1424–1434. doi: [10.1038/s41559-021-01535-8](https://doi.org/10.1038/s41559-021-01535-8).
17. **Dal Bello, M.**, Pérez-Escudero, A., Schroeder, F. C., & Gore, J. (2021). Inversion of pheromone preference optimizes foraging in *Caenorhabditis elegans*. *eLife*, 10, e58144. doi: [10.7554/eLife.58144](https://doi.org/10.7554/eLife.58144).
16. Bertsimas, D., Lukin, G., Mingardi, L., ... **Dal Bello, M.**, & et al. (2020). COVID-19 mortality risk assessment: An international multi-center study. *PLOS ONE*. doi: [10.1371/journal.pone.0243262](https://doi.org/10.1371/journal.pone.0243262).
15. Maggi, E., Bongiorno, L., Fontanini, D., Capocchi, A., **Dal Bello, M.**, Giacomelli, A., & Benedetti-Cecchi, L. (2020). Artificial light at night erases positive interactions across trophic levels. *Functional Ecology*, 34(3), 694–706. doi: [10.1111/1365-2435.13485](https://doi.org/10.1111/1365-2435.13485).
14. **Dal Bello, M.**, Rindi, L., & Benedetti-Cecchi, L. (2019). Temporal clustering of extreme climate events drives a regime shift in rocky intertidal biofilms. *Ecology*, 100(2), e02578. doi:[10.1002/ecy.2578](https://doi.org/10.1002/ecy.2578).
13. Rodríguez-Amor, D. & **Dal Bello, M.** (2019). Bottom-up approaches to synthetic cooperation in microbial communities. *Life*, 9(1). doi:[10.3390/life9010022](https://doi.org/10.3390/life9010022).
12. Benedetti-Cecchi, L., Bulleri, F., **Dal Bello, M.**, Maggi, E., Ravaglioli, C., & Rindi, L. (2018). Hybrid datasets: Integrating observations with experiments in the era of macroecology and big data. *Ecology*, 99(12), 2654–2666. doi:[10.1002/ecy.2504](https://doi.org/10.1002/ecy.2504).
11. Bulleri, F., Cucco, A., **Dal Bello, M.**, Maggi, E., Ravaglioli, C., & Benedetti-Cecchi, L. (2018). The role of wave-exposure and human impacts in regulating the distribution of alternative habitats on NW Mediterranean rocky reefs. *Estuarine, Coastal and Shelf Science*, 201, 114–122. Vectors of change in the marine environment. doi: [10.1016/j.ecss.2016.02.013](https://doi.org/10.1016/j.ecss.2016.02.013).
10. Rindi, L., **Dal Bello, M.**, & Benedetti-Cecchi, L. (2018). Experimental evidence of spatial signatures of approaching regime shifts in macroalgal canopies. *Ecology*, 99(8), 1709–1715. doi:[10.1002/ecy.2391](https://doi.org/10.1002/ecy.2391).
9. **Dal Bello, M.**, Leclerc, J.-C., Benedetti-Cecchi, L., Andrea De Lucia, G., Arvanitidis, C., Van Avesaath, P., ... et al. (2017). Consistent patterns of spatial variability between NE Atlantic and Mediterranean rocky shores. *Journal of the Marine Biological Association of the United Kingdom*, 97(3), 539–547. doi: [10.1017/S0025315416001491](https://doi.org/10.1017/S0025315416001491).

8. **Dal Bello, M.**, Rindi, L., & Benedetti-Cecchi, L. (2017). Legacy effects and memory loss: How contingencies moderate the response of rocky intertidal biofilms to present and past extreme events. *Global Change Biology*, 23(8), 3259–3268. doi:[10.1111/gcb.13656](https://doi.org/10.1111/gcb.13656).
7. Rindi, L., **Dal Bello, M.**, Dai, L., Gore, J., & Benedetti-Cecchi, L. (2017). Direct observation of increasing recovery length before collapse of a marine benthic ecosystem. *Nature Ecology & Evolution*, 1(6), 0153. doi:[10.1038/s41559-017-0153](https://doi.org/10.1038/s41559-017-0153).
6. Maggi, E., Rindi, L., **Dal Bello, M.**, Fontanini, D., Capocchi, A., Bongiorni, L., & Benedetti-Cecchi, L. (2017). Spatio-temporal variability in Mediterranean rocky shore microphytobenthos. *Marine Ecology Progress Series*, 575, 17–29. doi:[10.3354/meps12216](https://doi.org/10.3354/meps12216).
5. Hummel, H., Van Avesaath, P., Wijnhoven, S., ... **Dal Bello, M.**, et al. (2017). Geographic patterns of biodiversity in European coastal marine benthos. *Journal of the Marine Biological Association of the United Kingdom*, 97(3), 507–523. doi:[10.1017/S0025315416001119](https://doi.org/10.1017/S0025315416001119).
4. Kotta, J., Orav-Kotta, H., Jänes, H., ... **Dal Bello, M.**, et al. (2017). Essence of the patterns of cover and richness of intertidal hard bottom communities: A pan-european study. *Journal of the Marine Biological Association of the United Kingdom*, 97(3), 525–538. doi:[10.1017/S0025315416001351](https://doi.org/10.1017/S0025315416001351).
3. Puente, A., Guinda, X., Juanes, J. A., ... **Dal Bello, M.**, et al. (2017). The role of physical variables in biodiversity patterns of intertidal macroalgae along European coasts. *Journal of the Marine Biological Association of the United Kingdom*, 97(3), 549–560. doi:[10.1017/S0025315416001673](https://doi.org/10.1017/S0025315416001673).
2. **Dal Bello, M.**, Maggi, E., Rindi, L., Capocchi, A., Fontanini, D., Sanz-Lazaro, C., & Benedetti-Cecchi, L. (2015). Multifractal spatial distribution of epilithic microphytobenthos on a Mediterranean rocky shore. *Oikos*, 124(4), 477–485. doi:[10.1111/oik.01503](https://doi.org/10.1111/oik.01503).
1. Sanz-Lázaro, C., Maggi, E., Rindi, L., **Dal Bello, M.**, & Benedetti-Cecchi, L. (2015). Effects of grazer diversity on marine microphytobenthic biofilm: A “tug of war” between complementarity and competition. *Marine Ecology Progress Series*, 540, 145–155. doi:[10.3354/meps11507](https://doi.org/10.3354/meps11507).