Samraat Pawar — *Curriculum Vitae*

CONTACT

Reader
Department of Life Sciences
Imperial College London, Silwood Park Campus
Buckhurst Road, Ascot Berkshire SL5 7PY, UK

E-mail: s.pawar@imperial.ac.uk
Phone: +44 (0)2075942213
www: pawarlab.org

RESEARCH

Complex systems & biological scaling; Ecological metabolic theory; Species interaction networks; Assembly, functioning and recovery of microbial communities & ecosystems in fluctuating environments

PROFESSIONAL APPOINTMENTS

Reader, Dept. of Life Sciences, Imperial College London 2019–
Senior Lecturer, Dept. of Life Sciences, Imperial College London 2016–2019
Lecturer Dept. of Life Sciences, Imperial College London 2013–2016
Postdoctoral Scholar, Dept. of Ecology & Evolution, University of Chicago 2012–2013
Postdoctoral Scholar, Dept. of Biomathematics, University of California, Los Angeles 2009–2012

EDUCATION

PhD, Ecology, Evolution & Behavior, University of Texas, Austin, USA 2002–2009
MSc, Ecology, Saurashtra University, India 1997–1999
BSc, Zoology (*with distinction*), University of Pune, India 1993–1996

SELECTED PUBLICATIONS

(**Graduate student co-author;* ***Undergraduate student co-author*)

[1] Clegg T* & **Pawar S** (under review, *eLife*) Variation in thermal physiology can drive the temperature-dependence of microbial community richness. (preprint: https://www.biorxiv.org/content/10.1101/2022.10.28.514215v1).

[2] Smith TP*, Mombrikotb S, Ransome E, Kontopoulos DG, **Pawar S**, & Bell T (2022) Latent functional diversity may accelerate microbial community responses to temperature fluctuations. *eLife* 11: e80867. (preprint: https://www.biorxiv.org/content/10.1101/2021.04.14.439774v2).

[3] García FC, Clegg T*, Barrios DO, Warfield R, **Pawar S** & Yvon-Durocher G (2023) The temperature dependence of microbial community respiration is amplified by changes in species interactions *Nat Microbiol* 8: 272–283. (preprint: https://www.biorxiv.org/content/10.1101/2021.04.15.439947v2).

[4] Christensen A*, Piggott M, van Reeuwijk M, van Sebille E & **Pawar S** (2022) Investigating microscale patchiness of motile microbes driven by the interaction of turbulence and gyrotaxis in a 3D simulated convective mixed layer. *PLoS Comput Biol* 18(7): e1010291.

[5] Kordas R, **Pawar S**, Woodward G, & O'Gorman EJ (2022) Metabolic plasticity can amplify ecosystem responses to global warming. *Nat Comm* 13: 2161.

[6] Phillips J*, Vargas-Soto J, **Pawar S**, Koprivnikar J, Benesh D, and Molnár PK (2022) The effects of phylogeny, habitat, and host characteristics on the thermal sensitivity of helminth development. *Proc Roy Soc B* 289(1968): 20211878.

[7] Huxley PJ*, Murray KA, **Pawar S** & Cator LJ (2022) Competition and resource depletion shape the thermal response of population fitness in Aedes aegypti. *Commun Biol* 5:66

[8] Cook J*, **Pawar S** & Endres RG (2021) Thermodynamic constraints on the assembly and diversity of microbial ecosystems are different near to and far from equilibrium. *PLoS Comput Biol* 17(12): e1009643.

[9] Alonso PL*, Clegg T*, Cook J*, Smith TP & **Pawar S** (2021) The role of competition versus cooperation in microbial community coalescence. *PLoS Comput Biol* 17(11), e1009584.

[10] Smith TP*, Clegg T*, Bell T & **Pawar S.** (2021) Systematic variation in the temperature dependence of bacterial carbon use efficiency. *Ecol Lett* 24, 2123–2133.

[11] Ho H*, Tylianakis JM & **Pawar S** (2021) Behaviour moderates the impacts of food-web structure on species coexistence. *Ecol Lett* 24(2), 298–309.

[12] Padfield D, O'Sullivan H* & **Pawar S** (2021) rTPC and nls.multstart: a new pipeline to fit thermal performance curves in R. *Methods Ecol Evol* 12, 1138–1143.

[13] Kenna D*, **Pawar S** & Gill RJ (2021) Thermal flight performance reveals impact of warming on bumblebee foraging potential. *Func Ecol* 35 (11), 2508–2522.

[14] Huxley P*, Murray K, **Pawar, S** & Cator L (2021) The effect of resource limitation on the temperature-dependence of mosquito population fitness. *Proc Roy Soc B* 288

(1949), 20203217.

[15] Woodward G, Morris O*, Barquín J, Belgrano A, Bull C, de Eyto E, Friberg N, Guðbergsson G, Layer-Dobra K, Lauridsen RB, Lewis HM, McGinnity P, **Pawar S**, Rosindell J & O'Gorman EJ (2021) Using food webs and metabolic theory to monitor, model, and manage Atlantic Salmon – A keystone species under threat. *Frontiers Ecol Evol* 0: 912.

[16] Kontopoulos DG*, Smith TP*, Barraclough TG & **Pawar S** (2020) Adaptive evolution shapes the present-day distribution of the thermal sensitivity of population growth rate. *PLoS Biology* 18(10), e3000894.

[17] Kontopoulos D*, Van Sebille E, Michael L, Yvon-Durocher G, Barraclough TG & **Pawar S** (2020) Phytoplankton thermal responses adapt in the absence of hard thermodynamic constraints. *Evolution* 74(4), 775–790.

[18] Smith TP*, Thomas TJH**, García-Carreras B, Sal S, Yvon-Durocher G, Bell T & **Pawar S** (2019) Metabolic rates of prokaryotic microbes may rise with global warming. *Nat Comm* 10(1), 1–10.

[19] Zheng, JX-S.*, **Pawar, S** & Goodman, DFM (2019) Further towards unambiguous edge bundling: Investigating power-confluent drawings for network visualization. *IEEE Trans Vis Comput Graph*, 27, 2244–2249.

[20] Rabeling SC, Lim JL**, Tidon R, Neff JL, Simpson BB & **Pawar S.** (2019) Seasonal Variation of a Plant-Pollinator Network in the Brazilian Cerrado: Implications for Community Structure and Robustness. *PLoS ONE* 14 (12).

[21] Ho H, Tylianakis JM, Zheng JX-S* & **Pawar S** (2019) Predation risk influences food-web structure by constraining species diet choice. *Ecol Lett* 22(11), 1734–1745.

[22] **Pawar S**, Dell AI, Lin T*, Wieczynski DJ & Savage VM (2019) Interaction dimensionality scales up to generate bimodal distributions in ecological communities. *Frontiers Ecol Evol* 7, 1–11. (F1000 Review)

[23] Zheng JX*, **Pawar S** & Goodman DFM (2019) Graph drawing by stochastic gradient descent. *IEEE Trans. Vis. Comput. Graph.* 25(9): 2738-2748.

[24] Rund SSC, Kyle B, Cator L, Kyle C, Emrich SJ, Giraldo-Calderón GI, Johansson MA, Heydari N, Hobern D, Kelly SA, Lawson D, Lord C, MacCallum RM, Roche DG, Ryan SJ, Schigel D, Vandegrift K, Watts M*, Zaspel JM & **Pawar S** (2019) MIReAD, a minimum information standard for reporting arthropod abundance data. *Sci. Data*, 6(1), 40.

[25] Kissling DW, Walls R, Bowser A, Jones MO, Kattge J, Agosti D, Amengual J, Basset A, van Bodegom PM, Cornelissen JHC, Denny EG, Deudero S, Egloff W, Elmendorf SC, García EA 16, Jones KD, Jones OR, Lavorel S, Lear D, Navarro LM, **Pawar S**, et al (2018) Towards global data products of Essential Biodiversity Variables (EBVs) on species traits. *Nature Ecol Evol* 2, 1531–1540.

[26] García-Carreras B, Sal S, Padfield D*, Kontopoulos D-G*, Bestion E, Schaum C-E, Yvon-Durocher G & **Pawar S** (2018) Role of carbon allocation efficiency in the temperature dependence of autotroph growth rates. *PNAS* E7361–E7368.

[27] Bestion E, García-Carreras B, Schaum C-E, **Pawar S** & Yvon-Durocher G (2018) Metabolic traits predict the effects of warming on phytoplankton competition. *Ecol Lett*, 21(5), 655-664.

[28] Kontopoulos D-G*, García-Carreras B, Sal S, Smith TP* & **Pawar, S** (2018) Use and misuse of temperature normalisation in meta-analyses of thermal responses of biological traits. *PeerJ*, 6, e4363.

[29] Rizzuto M*, Carbone C & **Pawar S**, (2017) Foraging constraints reverse the scaling of activity time in carnivores. *Nature Ecol Evol*, 2, 247–253.

[30] Schaum C-E, Barton S*, Bestion E, Buckling A, Garcia-Carreras B, Lopez P, Lowe C, **Pawar S** et al (2017) Adaptation of phytoplankton to a decade of experimental warming linked to increased photosynthesis. *Nature Ecol Evol*, 1(4), 0094.

[31] Woodward G, Bonada N, Brown LE, Death RG, Durance I, Gray C, Hladyz S, Ledger, ME, Milner AM, Ormerod SJ, Thompson RM, **Pawar S** (2016) The effects of climatic fluctuations and extreme events on running water ecosystems. *Phil Trans Roy Soc B*, 371(1694), 20150274.

[32] **Pawar S**, Dell AI, Savage VM. & Knies JL (2016) Real versus artificial variation in the thermal sensitivity of biological traits. *Am Nat*, 187(2), E41-E52.

[33] **Pawar S** (2015) The role of body size variation in community assembly. *Adv Ecol Res*, 52, 201–248.

[34] Johnson L, Ben-Horin T**, Lafferty KD, McNally A*, Mordecai E, Paaijmans KP, **Pawar S**, & Ryan SJ (2015) Understanding uncertainty in temperature effects on

vector-borne disease: A Bayesian approach. *Ecology* 96(1), 203–213.

[35] Tang S*, **Pawar S** & Allesina S (2014) Correlation between interaction strengths drives stability in large ecological networks. *Ecol Lett* 17, 1094–1100.

[36] Dell AI, **Pawar S** & Savage VM (2014) Temperature dependence of trophic interactions are driven by asymmetry of species responses and foraging strategy. *J Anim Ecol*, 83(1) 70–84.

[37] Dell AI, **Pawar S** & Savage VM (2013) The temperature dependence of biological traits. Ecology, 94 (5), 1205–1206.

[38] Mordecai E, Paaijmans K, Johnson L, Balzer C, Ben-Horin T, DeMoor E, McNally A, **Pawar S**, Ryan SJ, Smith T & Lafferty KD (2012) Optimal temperature for malaria transmission is dramatically lower than previously predicted. *Ecol Lett*, 16(1), 22–30.

[39] **Pawar S**, Dell AI. & Savage VM (2012) Dimensionality of consumer search space drives trophic interaction strengths. *Nature*, 486, 485–489. (F1000 Review)

[40] Dell AI, **Pawar S** & Savage VM (2011) Systematic variation in the temperature dependence of physiological and ecological traits. *PNAS*, 108, 10591–10596. (PNAS Commentary)

[41] **Pawar S** (2009) Community assembly, stability and signatures of dynamical constraints on food web structure. *J Theor Biol*, 259(3), 601–612.

[42] **Pawar S**, Koo M S, Kelley C, Ahmed MF, Choudhury S & Sarkar S (2007) Conservation assessment and prioritization of areas in Northeast India: priorities for amphibians and reptiles. *Biol Cons*, 136, 346–361.

[43] **Pawar SS.**, Birand AC, Ahmed MF, Sengupta S & Raman TR.S (2007) Conservation biogeography in Northeast India: hierarchical analysis of cross-taxon distributional congruence. *Divers Distrib*, 13, 53–65.

[44] **Pawar SS.**, Rawat GS. & Choudhury BC (2004) Recovery of frog and lizard communities following primary habitat alteration in Mizoram, Northeast India. *BMC Ecology* 4 (1), 10. (BMC Highly Accessed)

[45] Birand A & **Pawar S** (2004) An ornithological survey in north-east India. Forktail 20, 7–16.

[46] **Pawar SS.** & Biswas S (2001) First record of the Smooth-backed Parachute Gecko Ptychozoon lionotum Annandale 1905 from the Indian Mainland. Asiatic Herp Res 9, 101–106.

[47] Slowinski JB, **Pawar SS.**, Win H, Thin T, Gyi SW, Oo SL & Tun H (2001) A new Lycodon (Serpentes: Colubridae) from North-east India and Myanmar (Burma). Proc Calif Acad Sci 52, 397–405.

[48] **Pawar SS.** & Choudhury BC (2000) An inventory of Chelonians from Mizoram, North-east India: new records and some observations on threats. Hamadryad 25, 144–158.

Editorials, Perspectives Reviews & Responses

[49] **Pawar S** (2022) Another step towards a unifying theory for ecosystems? *J Biosci* (In press).

[50] Jackson M, **Pawar S** & Woodward G (2021) The temporal dynamics of multiple stressor effects: from individuals to ecosystems. *TREE* 36, 402–410.

[51] Cator LJ, Johnson LR , Mordecai E, El Moustaid F*, Smallwood TRC*, LaDeau SL, Johansson MA, Hudson PJ, Boots M, Thomas MB, Power AG & **Pawar S** (2020) The Role of Vector Trait Variation in Vector-Borne Disease Dynamics, *Frontiers Ecol Evol* 8, 1–25.

[52] **Pawar S** (2020) New insights into the role of nutrient cycling in food web dynamics. *Peer Community in Ecology* 1:3. (`https://ecology.peercommunityin.org/articles/rec?id=36`)

[53] **Pawar S**, Dell AI, and Savage VM (2015) From metabolic constraints on individuals to the eco-evolutionary dynamics of ecosystems. *In* A Belgrano, G Woodward, and U Jacob, editors. *Aquatic Functional Biodiversity: An Eco-Evolutionary Approach* (pp. 3–36). Elsevier.

[54] Johnson L, Lafferty KD, McNally A, Mordecai E, Paaijmans K, **Pawar S** & Ryan SJ (2015) Mapping the Distribution of Malaria: Current approaches and future directions. In: *Analyzing and Modeling Spatial and Temporal Dynamics of Infectious Diseases* (ed. Chen D, Moulin B, Wu J) Wiley-Interscience, NJ, 189 p.

[55] Gibert JP*, Dell AI, DeLong JP & **Pawar S** (2015) Scaling up trait variation from individuals to ecosystems. *Adv Ecol Res* 52, 1–17.

[56] **Pawar S** (2014) Why are plant-pollinator networks nested? *Science* 345, 383.

[57] **Pawar S**, Dell AI & Savage VM (2013) Reply to Giacomini et al. *Nature* 493 (7434),

E2–E3.

[58] **Pawar SS** (2005) Geographical variation in the rate of evolution: effect of available energy, or fluctuating environment? *Evolution* 59 (1), 234–237.

[59] Biswas S & **Pawar SS.** (2006) Phylogenetic tests of distribution patterns in South Asia: towards an integrative approach. J Biosci. 31(1), 95–113.

[60] **Pawar SS.** (2003) Taxonomic chauvinism and the methodologically challenged. *BioScience* 53(9):861–864.

[61] **Pawar S** (1998) Book Review: Biogeography of the reptiles of South Asia. Curr Sci 75(8), 857–858.

Teaching

Undergraduate

Lecturer, *Metabolic Ecology*, 1^{st} year BSc in Biological Sciences 2015–
Department of Life Sciences, Imperial College London

Lecturer, *Modelling Global Change Biology*, 3^{rd} year BSc in Biological Sciences 2015–
Department of Life Sciences, Imperial College London

Lecturer, *Computing & Statistics*, 1^{st} & 2^{nd} year BSc 2014–
Department of Life Sciences, Imperial College London

Lecturer, *Energetics in Population and Community Ecology*, 3^{rd} year BSc in Biological Sciences 2014–2016
Department of Life Sciences, Imperial College London

Lecturer, *Population and Community Ecology*, Final year BSc 2013
Department of Life Sciences, Imperial College London

Graduate

Lecturer, *Biological Computing Bootcamp, NERC Centre for Doctoral Training in Quantitative and Modelling skills in Ecology and Evolution* 2017–
Imperial College London & University of Reading

Lecturer, *Training modules on Ecoinformatics, Imperial College NERC Doctoral Training Partnership on Science and Solutions for a Changing Planet* 2015–16
Imperial College London

Lecturer, *Biological Computing in UNIX and Python – MSc/MRes in Computational Methods in Ecology and Evolution* 2014–
Department of Life Sciences, Imperial College London

Lecturer, *Advanced Statistics – Joint module for MSc/MRes in Ecology, Evolution and Conservation, MSc in Ecological Applications, NHM MSc in Taxonomy and Biodiversity* 2014–
Department of Life Sciences, Imperial College London

Lecturer, *Biological Computing in R – Joint module for MSc/MRes in Ecology, Evolution and Conservation, MSc in Conservation Science, MSc in Ecological Applications, NHM MSc in Taxonomy and Biodiversity* 2014–
Department of Life Sciences, Imperial College London

Lecturer, *Computational Genomics and Ecoinformatics – MSc in Quantitative Biology and MRes in Biodiversity Informatics & Genomics*, Department of Life Sciences, Imperial College London 2013–14
Department of Life Sciences, Imperial College London

Guest Lecturer, *Biological Network Structure and Dynamics* 2012, 2010, 2009
Department of Biomathematics, University of California, Los Angeles

Guest Lecturer, *Modeling food web structure and dynamics* 2012
Department of Ecology and Evolutionary Biology, University of California, Los Angeles

Major Grants

VectorByte: A global informatics platform for studying the ecology of vector-borne diseases 2020–25
$433,403, US National Science Foundation (NSF) - Cyberinfrastructure for Biological Research (CIBR) (*UK Primary Investigator*)

Centre for Doctoral Training in quantitative & modelling skills in ecology and evolution 2017–24
£2,194,620, UK National Environment Research Council (*Primary Investigator*)

A Novel Framework for Predicting Emerging Chemical Stressor Impacts in Complex Ecosystems 2018–22
£1,933,825, UK National Environment Research Council (*Co-Investigator*)

Impacts of global warming in sentinel systems: from genes to ecosystems 2015–19
£3,686,480, UK National Environment Research Council Large Grants Program (*Co-Investigator*)

Vector Behaviour in Transmission Ecology (VectorBiTE) 2015–20

£499,290, UK BBSRC, £300,986 from US NIH under the US/UK Collaborative Research Collaboration Network Program (*Co-Investigator*)

Can metabolic traits limit species invasions under climate change? 2015–18
£703,562, UK National Environment Research Council (*Primary Investigator*)

Honors, Awards & Fellowships

Leverhulme Trust Research Fellowship for "A novel modelling framework for microbiome functional stability." 2021–2022
Nominee, University of California Los Angeles Chancellor's Award for outstanding postdoctoral research accomplishment 2011
Harrington Dissertation Fellowship, University of Texas at Austin 2008–09
Frank & Fern Blair Fellowship in Integrative Biology, University of Texas at Austin 2007
Graduate Student Professional Development Award, University of Texas at Austin 2006
Beijing Complex Systems Summer School scholarship, Santa Fe Institute, USA 2005
Zoology Scholarship Endowment for Excellence, University of Texas at Austin, USA 2004
Research Fellowship, Section of Integrative Biology, University of Texas at Austin, USA 2003
Travel Scholarship, India Foundation 2002
Chicago Zoological Society Conservation and Research award 2000
Centre for Ecological Research and Conservation Research Award, India 2000
McCann Award, Bombay Natural History Society, India 1998
MSc fellowship award for academic merit, Ministry of Environment and Forests, Government of India 1997–99

Academic services

Research and Education

Director, *NERC Centre for Doctoral Training in Quantitative and Modelling Skills in Ecology and Evolution* 2019–
Director, *MSc and MRes in Computational Methods in Ecology and Evolution*, Department of Life Sciences, Imperial College 2014–
Member, *PGR Research Computing Skills Steering Group*, Imperial College London 2019–

Doctoral Committees

Internal PhD Committees: 31 (past and current) at ICL; *External*: University of Oxford; University of Sheffield; University of Exeter; Trinity College Dublin; Indian Institute of Sciences; Royal Holloway University of London

Editorial

Editor Board Member, *Ecological Monographs*, 2022–; Editorial Board Member, *Scientific Data*, 2018–; Guest Editor, *PLoS Computational Biology*, 2022; Review editor, *PLOS Biology*, 2017–; Review Editor, *PCI Ecology*, 2018–; Recommender, *Frontiers in Ecology and Evolution*, 2014–2020; Volume Editor, *Advances in Ecological Research: From Traits to Ecosystem Function*, 2015

Reviewing

Several scientific journals including Am Nat, Ecol Modelling, Ecology, Ecol Lett, ISME Journal, J Biosci, J Anim Ecol, J Royal Soc Interface, J Theor Biol, Math Biosci, Nature, Nat Comm, Nature Ecol Evol, PLoS Comput Biol, PNAS, Proc Royal Soc B, PLOS Biology, Phys Rev E, Phys Rev Letters, Science & Theor Pop Biol

Grant reviewing

Member of UK NERC Peer Review College (Panel Member of the CDT Call 2020, Exploring Frontiers Call 2022, and the Independent Research Fellowship Call 2022), Austrian Science Fund, French National Research Agency, National Geographic Society, US EPA (STAR fellowships), US Department of Defence, Chilean Antarctic Institute, Science Foundation Ireland, National Science Centre Poland

Advisory Boards and Steering Committees

Member of Advisory Board, *Ecology & Global Change Gateway, F1000Research*, 2022–
Member of Steering Committee, *VectorBiTE Research Coordination Network*, 2016–2022
Member of Advisory Board, *Current Conservation*, 2012–2016

Synergistic activities (Selected)

Memberships

British Ecological Society, Ecological Society of America, American Society of Naturalists

Workshops, conferences & seminars

Eco-mechanics of food webs, German Centre for Integrative Biodiversity Research (iDiv), Halle-Jena-Leipzig, Germany, Oct 2019

Irreversible Processes in Ecological Evolution, Santa Fe Institute, Santa Fe, New Mexico, Jan 2019

VectorBiTE 2018, Annual Meeting of the Vector Behavior in Transmission Ecology RCN, Asilomar, California , June 2018 (Co-Organizer)

VectorBiTE 2017, Annual Meeting of the Vector Behavior in Transmission Ecology RCN, Imperial College London, UK , July 2017 (Co-Organizer)

GLOBal Infrastructures for Supporting Biodiversity research (GLOBIS) – Traits Workshop, University of Amsterdam, June 2016.

VectorBiTE 2016, Annual Meeting of the Vector Behavior in Transmission Ecology RCN, University of South Florida, Tampa, Florida, March 2016 (Co-Organizer)

Linking Ecological, Evolutionary and Ecosystem Dynamics, Gordon Research Conference on Unifying Ecology across Scales, University of New England, Biddeford, Maine, Jul 2016 (Session Leader).

Combining Information Theory and Game Theory, Santa Fe, New Mexico, Aug 2012 (Invited participant)

Trait Evolution and the Dynamics of Food Webs, Annual Meeting of the Ecological Society of America, Austin, Texas, Aug 2011 (Invited moderator)

Evolutionary Processes in Ecological Networks, Annual Meeting of the Ecological Society of America, Austin, Texas, Aug 2011 (Invited moderator)

Adaptation to climate from a spatial perspective, University of Helsinki, Finland, Sep 2011 (Invited speaker)

Early Career Scientist Symposium on networks in Ecology and Evolution, University of Michigan, Ann Arbor, Mar 2008

Working groups

How do social and ecological networks cope with environmental change? Grand Challenges in Ecosystems and the Environment, Imperial College London, Silwood Park, July 2014 – 2016

Malaria and Climate Change, National Center for Ecological Analysis and Synthesis & University of California, Santa Barbara, Feb 2011–2013

Databases

VectorBiTE Ecoinformatics: vectorbyte.org

The Global Biotraits Database: BioTraits.ucla.edu

Advisees/ Mentoring

PhD: D Duan (2021–); O Morris (2019–); J Cook (2017–2021); A Christensen (2017–2021); T Clegg (2017–2021); P Huxley (2016–2021); J Zheng (2016–2020); H Ho (2016–2020); T Smith (2015–19); D Kontopoulos (2015–19); R Short, Co-Supervisor (2013–2018); G Adams, Co-Supervisor (2012–15)

Postdocs: T. Clegg (2022–); A. Christensen (2021–2022); E Cavan (2019–2020); S. Sál (2015–17); B Gárcia-Carreras (2015–18); R Kordas (2016–2019)

Research Assistants: M. Watts (2016–2021); A. Etard (2017–2018); D. Kontopoulos (2014–2016)

Masters: 54 students advised to completion at ICL since 2013

BSc: 50 students advised to date at ICL since 2013 (ICL UROP + Final Year Dissertation projects)

Plenary talks

The Development of Complex Biological Systems in Uncertain Environments, EMBO Workshop on Developmental Metabolism - flows of energy, matter and information, EMBL Heidelberg, Germany, Sep 2023 (Scheduled)

Size, temperature, and eco-mechanics of food webs, Workshop on Eco-mechanics in Foodwebs, iDiV, Leipzig, Germany, Oct 2019

Are changes in species interactions and their ecosystem consequences irreversible?, Workshop on Irreversible Processes in Ecological Evolution, Santa Fe Institute, Santa Fe, New Mexico, Jan 2019

Invited talks (Selected)

Microbial Community Dynamics in Fluctuating Thermal Environments, Biology Department, San Diego State University, Nov 2022

Thermal Constraints on Microbial Community Structure and Functioning , Department of Zoology & Biodiversity Research Centre, University of British Columbia, Dec 2021

Ecological and Metabolic Constraints on Microbiome Structure and Functioning, Departmental of Animal & Plant Sciences, University of Sheffield, Oct 2020

The effects of temperature fluctuations on microbiome structure and functioning, Webinar on Endophytes and Climate Resilience in Plants, University of Agricultural Sciences, Banga-

lore, India, June 2020

Metabolic constraints on species interactions and stability of the ecosystem carbon budget, Gordon Research Conference on Unifying Ecology across Scales, University of New England, Biddeford, Maine, Jul 2018

Metabolic Constraints on Complex Ecosystems, University of Reading, Reading, November 2017

Metabolic Constraints on Complex Ecosystems, Mathematical Models in Ecology and Evolution Meeting, London, July 2017

Metabolic Constraints on Complex Ecosystems, EAWAG, Switzerland, April 2017

The spontaneous emergence of properties of complex ecosystems: how much do metabolic constraints matter?, Gordon Research Conference on Unifying Ecology across Scales, University of New England, Biddeford, Maine, Jul 2016

Metabolic constrains on emergent phenomena in complex ecological networks, Centre for Complexity Science, University of Warwick, March 2016

From Individual energetics to the dynamics of complex communities, Biosciences Departmental Seminar, University of Exeter (Penryn Campus), Mar 2015

How do thermal fluctuations propagate from cells to populations?, Biomathematics Seminar, Imperial College London, Dec 2014

How do thermal fluctuations propagate from cells to populations?, Department of Mathematics, University of York, Dec 2014

A mechanistic framework for scaling up systems biology from individuals to ecosystems, National Centre for Biological Sciences, Bangalore, India Nov 2014

From individual energetics to community dynamics, Indian Institute of Science, Education and Research, Pune, India, Nov 2014

Individuals, interactions, and aquatic ecosystem dynamics, British Ecological Society Aquatic Group Annual Meeting, July 2014

A mechanistic framework for scaling up systems biology from individuals to communities, Okinawa Institute of Science and Technology, Okinawa, Japan, April 2014

A mechanistic framework for scaling up systems biology from individuals to communities, Division of Ecology and Evolution, Imperial College London, Silwood Park, Feb 2013

A mechanistic framework for scaling up systems biology from individuals to communities, Department of Integrative Biology, University of South Florida, Feb 2013

Scaling up systems biology from individuals to communities, School of Biological Sciences, Monash University, Melbourne, Feb 2013

Scaling up systems biology from individuals to communities, Department of Biology, University of Rochester, Rochester, New York, Jan 2013

Integrating consumer-resource interactions into the Metabolic Theory of Ecology, Gordon Research Conference on the Metabolic Basis of Ecology, University of New England, Biddeford, Maine, Jul 2012

A Mechanistic framework for Understanding Multi-Trophic Effects of Nutrient Enrichment, GRS section of GRC on the Metabolic Basis of Ecology, University of New England in Biddeford, Maine, Jul 2012

On optimal foraging and community dynamics, Bambi Talk, Barro Colorado Island, Smithsonian Tropical Research Institute, Panama, Apr 2012

Scaling up the effects of body size and environmental temperature from individuals to communities, Smithsonian Tropical Research Institute, Panama City, Panama, Nov 2011

Scaling up the effects of physiological constraints from individuals to communities, Frontiers in Systems and Integrative Biology Seminar, Department of Biomathematics, University of California, Los Angeles, Oct 2011

Predicting how body size, habitat structure, and environmental temperature shape community structure and dynamics, Department of Biology, University of New Mexico, Albuquerque, Jun 2011

Understanding the effects of climatic warming on biological interactions, University of California at Santa Barbara, Feb 2011

The effects of body size and temperature on trophic interactions and community dynamics, Department of Biology, California State University, Fresno, California, Nov 2010

The effects of body size and temperature on consumer-resource interactions and population dynamics, National Center for Ecological Analysis and Synthesis, Santa Barbara, California, Oct 2010

From individuals to population interaction networks: disentangling Darwin's entangled bank EEB seminar, Rice University, Houston, Mar 2008

Life history, energetics, and the molding of population interaction networks, Early Career

Scientist Symposium on networks in Ecology and Evolution, University of Michigan, Ann Arbor, Mar 2008