

## 2019 AIMS publications

- Abbott, T. M. C., ... **Bassett, B.A.**, ...*et al.* (2019) 'First Cosmology Results using Type Ia Supernovae from the Dark Energy Survey: Constraints on Cosmological Parameters', *The Astrophysical Journal*, 872(2), p. L30. doi: 10.3847/2041-8213/ab04fa.
- Abbott, T. M. C., ... **Bassett, B.A.**, ...*et al.* (2019) 'Cosmological Constraints from Multiple Probes in the Dark Energy Survey', *Physical Review Letters*. American Physical Society, 122(17), p. 171301. doi: 10.1103/PhysRevLett.122.171301.
- Bingham, J., Landi, P. and **Hui, C.** (2019) 'Prejudice, privilege, and power: Conflicts and cooperation between recognizable groups', *Mathematical Biosciences and Engineering*, 16(5), pp. 4092–4106. doi: 10.3934/mbe.2019203.
- Bosc, C., **Hui, C.**, *et al.* (2019) 'Importance of biotic niches versus drift in a plant-inhabiting arthropod community depends on rarity and trophic group', *Ecography*, 42(11), pp. 1926–1935. doi: 10.1111/ecog.04396.
- Broussard, A., ... **Dave, R.**, ...*et al.* (2019) 'Star Formation Stochasticity Measured from the Distribution of Burst Indicators', *The Astrophysical Journal*, 74. doi: 10.3847/1538-4357/ab04ad.
- Brout, D., ... **Bassett, B.A.**, ...*et al.* (2019) 'First Cosmology Results Using SNe Ia from the Dark Energy Survey : Analysis , Systematic Uncertainties , and Validation', *The Astronomical Journal*, 874, p. 29. doi: 10.3847/1538-4357/ab08a0.
- Brout, D., ... **Bassett, B.A.**, ...*et al.* (2019) 'First Cosmology Results Using Type Ia Supernovae from the Dark Energy Survey : Photometric Pipeline and Light-curve Data Release', *The Astrophysical Journal*, 106. doi: 10.3847/1538-4357/ab06c1.
- Carrón Duque, J... **Fantaye, Y.**, *et al.* (2019) 'Point Source Detection and False Discovery Rate Control on CMB Maps', *Astronomy and Computing*. Elsevier B.V., 28, p. 100310. doi: 10.1016/j.ascom.2019.100310.
- Chimusa, E. R., ... **Mazandu, G.**, *et al.* (2019) 'Post genome-wide association analysis: dissecting computational pathway/network-based approaches', *Briefings in Bioinformatics*, 20(2), pp. 690–700. doi: 10.1093/bib/bby035.d
- De Villiers, J. and Ranirina, D.** (2019) 'Shortest multi-wavelet matrix filters for refinable vector splines', *Advances in Computational Mathematics*. Advances in Computational Mathematics, pp. 3327–3365. doi: 10.1007/s10444-019-09740-7.
- Degoot, A. M.** *et al.* (2019) 'Predicting Antigenicity of Influenza A Viruses Using biophysical ideas', *Scientific Reports*, 9(1), p. 10218. doi: 10.1038/s41598-019-46740-5.
- Djofack, Z. I.**, Nguenang, J. P. and Kenfack-Jiotsa, A. (2019) 'Quantum breathers and modulational instability in quantum zigzag spin chains with alternative combination ferromagnetic and antiferromagnetic interactions in an external magnetic field', *Journal of Magnetism and Magnetic Materials*, 489, p. 165385. doi: <https://doi.org/10.1016/j.jmmm.2019.165385>.
- Djofack, Z. I.** *et al.* (2019) 'Modulational instability in addition to discrete breathers in 2D quantum ultracold atoms loaded in optical lattices', *Nonlinear Dynamics*. Springer Netherlands, 98(3), pp. 1905–1918. doi: 10.1007/s11071-019-05295-w.
- Dreyer, F... **Hui, C.**, *et al.* (2019) 'Parasite diversity associated with African penguins (*Spheniscus demersus*) and the effect of host and environmental factors', *Parasitology*, pp. 1–14. doi: 10.1017/s0031182018002159.

**Durbach, I. N.** and Montibeller, G. (2019) 'Behavioural Analytics: Exploring judgments and choices in large data sets', *Journal of the Operational Research Society*, 70(2), pp. 255–268.

Espinaze, M. P. A... **Hui, C.**, et al. (2019) 'The efficacy of a modified Berlese funnel method for the extraction of ectoparasites and their life stages from the nests of the African Penguin *Spheniscus demersus*', *Ostrich*, 90(3), pp. 271–277. doi: 10.2989/00306525.2019.1616230.

Etémé, A. S., **Tabi, C. B.** and Mohamadou, A. (2019) 'Firing and synchronization modes in neural network under magnetic stimulation', *Communications in Nonlinear Science and Numerical Simulation*, 72, pp. 432–440. doi: 10.1016/j.cnsns.2019.01.004.

**Gavhi-Molefe, M. R. and de Villiers, J.** (2019) 'On interpolatory subdivision symbol formulation and parameter convergence intervals', *Journal of Computational and Applied Mathematics*, 349, pp. 354–365. doi: <https://doi.org/10.1016/j.cam.2018.06.004>.

**Geza, E.**, Mujo, J. and et al (2019) 'A comprehensive survey of models for dissecting local ancestry deconvolution in human genome.', *Briefings in bioinformatics*. [London] : Henry Stewart Publications, 20(5), p. 1709.

**Gouba, L.**, Govaerts, J. (2019) 'The 1 + 1 dimensional Abelian higgs model revisited: Non-perturbative Dynamics in the Physical Sector', in *Proceedings of the 5th International Workshop on Contemporary Problems in Mathematical Physics, COPROMAPH 2007*, pp. 159–163.

**Gouba, L.**, Govaerts, J., Hounkonnou, M. N. (2019) 'The 1 + 1 dimensional Abelian higgs model revisited: Physical sector and solitons. Proceedings of the 5th International Workshop on Contemporary Problems in Mathematical Physics.', in *Proceedings of the 5th International Workshop on Contemporary Problems in Mathematical Physics, COPROMAPH 2007*, pp. 164–169.

Heywood, I., Camilo, F., Cotton, W. D, ...**Oozeer, N.**, ...et al (2019) 'Inflation of 430-parsec bipolar radio bubbles in the Galactic Centre by an energetic event.', *Nature*, 573, pp. 235–237.

Hotchkiss, J.... **Mazandu, G.**, et al. (2019) 'The Hearing Impairment Ontology : A Tool for Unifying Hearing Impairment Knowledge to Enhance Collaborative Research', *Genes*, 21(10), p. 12.

**Houédanou, W. K.** (2019) 'An a posteriori error analysis for a coupled continuum pipe-flow/Darcy model in Karst aquifers: Anisotropic and isotropic discretizations', *Results in Applied Mathematics*. Elsevier B.V., 4, pp. 9–11. doi: 10.1016/j.rinam.2019.100081.

**Hui, C.** and Richardson, D. M. (2019) 'Network Invasion as an Open Dynamical System: Response to Rossberg and Barab&#xe1;s', *Trends in Ecology & Evolution*. Elsevier, 34(5), pp. 386–387. doi: 10.1016/j.tree.2019.01.016.

**Hui, C.** and Richardson, D. M. (2019) 'How to Invade an Ecological Network', *Trends in Ecology and Evolution*. Elsevier Ltd, 34(2), pp. 121–131. doi: 10.1016/j.tree.2018.11.003.

Keet, J. H. Ellis, a.g., **Hui, C.**, and Le Roux, J.J. (2019) 'Strong spatial and temporal turnover of soil bacterial communities in South Africa's hyperdiverse fynbos biome', *Soil Biology and Biochemistry*. Elsevier, 136(July), p. 107541. doi: 10.1016/j.soilbio.2019.107541.

**Koffi, R.S. & Tambue, A. C. E.** (2019). <https://doi.org/10.1007/s1061-019-09906-x> (2019) 'A Fitted Multi-point Flux Approximation Method for Pricing Two Options', *Computational Economics*, pp. 1–32.

Lasker, J. ... **Bassett, B.**, ... et al (2019) 'First cosmology results using Type IA supernovae from the dark energy survey: effects of chromatic corrections to supernova photometry on measurements of cosmological parameters', *Monthly Notices of the Royal Astronomical Society*, 485(4), pp. 5329–5344.

Latombe, G., Roura-Pascual, N. and **Hui, C.** (2019) 'Similar compositional turnover but distinct insular environmental and geographical drivers of native and exotic ants in two oceans', *Journal of Biogeography*, 46(10), pp. 2299–2310. doi: 10.1111/jbi.13671.

Le Roux, J. J.... **Hui, C.**, ...*et al.* (2019) 'Recent Anthropogenic Plant Extinctions Differ in Biodiversity Hotspots and Coldspots', *Current Biology*, 29(17), pp. 2912-2918.e2. doi: 10.1016/j.cub.2019.07.063.

Macaulay, E. ... **Bassett, B.**, ...*et al.* (2019) 'First Cosmological Results using Type Ia Supernovae from the Dark Energy Survey: Measurement of the Hubble constant', *Monthly Notices of the Royal Astronomical Society*, 486(April), pp. 2184–2196.

MacFadyen, S., **Hui, C.**, Verburg, P.H., Van Teeffelen, A.J.A. (2019) 'Spatiotemporal distribution dynamics of elephants in response to density, rainfall, rivers and fire in Kruger National Park, South Africa', *Diversity and Distributions*, 25(6), pp. 880–894. doi: 10.1111/ddi.12907.

Malz, A. I.... **Lochner, M.**, ... *et al.* (2019) 'The Photometric LSST Astronomical Time-series Classification Challenge PLAsTiCC: Selection of a Performance Metric for Classification Probabilities Balancing Diverse Science Goals', *The Astronomical Journal*, 158(5), p. 171. doi: 10.3847/1538-3881/ab3a2f.

**Masakuna, J., Utete, S.** and Kroon, S. (2019) 'A Coordinated Search Strategy for Solitary Robots', *2019 Third IEEE International Conference on Robotic Computing (IRC)*, pp. 433–434.

Mbongwa, N.A., **Hui, C.**, Pulfrich, A., Von Der Heyden, S. (2019) 'Every beach an island — deep population divergence and possible loss of genetic diversity in *Tylos granulatus*, a sandy shore isopod', *Marine Ecology Progress Series*, 614, pp. 111–123.

Mnika, K., **Mazandu, G.**, ... *et al.* (2019) 'Hydroxyurea-Induced miRNA Expression in Sickle Cell Disease Patients in Africa', *Frontiers in Genetics*, 10(May), pp. 1–6. doi: 10.3389/fgene.2019.00509.

**Mukam, J. D. and Tambue, A.** (2019) 'Optimal strong convergence rates of numerical methods for semilinear parabolic SPDE driven by Gaussian noise and Poisson random measure', *Computers and Mathematics with Applications*. Elsevier Ltd, (xxxx), pp. 1–18. doi: 10.1016/j.camwa.2019.01.011.

**Muller, E. .... Bah, B.**, ...*et al.* (2019) 'Outcome prediction with serial neuron-specific enolase and machine learning in anoxic-ischaemic disorders of consciousness', *Computers in Biology and Medicine*. Elsevier Ltd, 107(February), pp. 145–152. doi: 10.1016/j.compbiomed.2019.02.006.

Nnakenyi, C. A.... **Hui, C.**, ...*et al.* (2019) 'Fine-tuning the nested structure of pollination networks by adaptive interaction switching, biogeography and sampling effect in the Galápagos Islands', *Oikos*, 0(0). doi: 10.1111/oik.06053.

Ogden, N. H., ...**Hui, C.**, *et al.* (2019) 'Emerging infectious diseases and biological invasions: a call for a One Health collaboration in science and management', *Royal Society Open Science*, 6(3), p. 181577.

Picó-Pérez, M. Ipser, J., **Taylor, P.**, *et al.* (2019) 'Intrinsic functional and structural connectivity of emotion regulation networks in obsessive-compulsive disorder', *Depression and Anxiety*, 36(2), pp. 110–120. doi: 10.1002/da.22845.

Rafieferantsoa, M., **Davé, R.** and Naab, T. (2019) 'mufasa: Time-scales for H i consumption and SFR depletion of satellite galaxies in groups', *Monthly Notices of the Royal Astronomical Society*, 486(4), pp. 5184–5196. doi: 10.1093/mnras/stz1199.

Rivi, M., **Lochner, M.**, *et al.* (2019) 'Radio galaxy shape measurement with Hamiltonian Monte Carlo in the visibility domain', *Monthly Notices of the Royal Astronomical Society*, 482(1), pp. 1096–1109. doi: 10.1093/mnras/sty2700.

- Roberts, N., **Tshuma, L.**, *et al.* (2019) 'Mathematical learning and its difficulties in Southern Africa', *International Handbook of Mathematical Learning Difficulties: From the Laboratory to the Classroom*, pp. 231–252. doi: 10.1007/978-3-319-97148-3\_15.
- Rossberg, A. G., ... **Hui, C.**, ...*et al.* (2019) 'Let's Train More Theoretical Ecologists – Here Is Why', *Trends in Ecology and Evolution*. Elsevier Ltd, 34(9), pp. 759–762. doi: 10.1016/j.tree.2019.06.004.
- Shi, P., ... **Hui, C.**, ... *et al.* (2019) 'Influence of the physical dimension of leaf size measures on the goodness of fit for Taylor's power law using 101 bamboo taxa', *Global Ecology and Conservation*. Elsevier Ltd, 19, p. e00657. doi: 10.1016/j.gecco.2019.e00657.
- Steidinger, B. S...**Hui, C.**, ... *et al.* (2019) 'Climatic controls of decomposition drive the global biogeography of forest-tree symbioses', *Nature*, 569(7756), pp. 404–408. doi: 10.1038/s41586-019-1128-0.
- Tambue, A.** and Mukam, J. D. (2019) 'Strong Convergence and Stability of the Semi-Tamed and Tamed Euler Schemes for Stochastic Differential Equations with Jumps under Non-Global Lipschitz Condition', *International Journal of Numerical Mathematics and Modeling*, 16(6), pp. 847–872.
- Tambue, A.** and Mukam, J. D. (2019) 'Strong convergence of the linear implicit Euler method for the finite element discretization of semilinear SPDEs driven by multiplicative or additive noise', *Applied Mathematics and Computation*. Elsevier Inc., 346, pp. 23–40. doi: 10.1016/j.amc.2018.09.073.
- Vafaei Sadr, A. *et al.* (2019) 'DeepSource: point source detection using deep learning', *Monthly Notices of the Royal Astronomical Society*, 484(2), pp. 2793–2806. doi: 10.1093/mnras/stz131.
- Vos, E. E., Francois Luus, P.S., Finlay, C.J. and **Bassett, B.A.** (2019) 'A Generative Machine Learning Approach to RFI Mitigation for Radio Astronomy', *IEEE International Workshop on Machine Learning for Signal Processing, MLSP*. IEEE, 2019-Octob, pp. 1–6. doi: 10.1109/MLSP.2019.8918820.
- Yu, X., Shi, P., **Hui, C.**, (...), Zhang, Q., Feng, C. (2019) 'Effects of Salt Stress on the Leaf Shape and Scaling of', *Symmetry*, 11(8), pp. 1–15.
- Zhao, Z., **Hui, C.**, Plant, R. E. and (...), Li, Z., Carey, J. R. (2019) 'Life table invasion models : spatial progression and species-specific partitioning', *Ecology*, 100(5), pp. 1–11. doi: 10.1002/ecy.2682.
- Zhao, Z., **Hui, C.**, *et al.* (2019) 'Plant Species Richness Controls Arthropod Food Web : Evidence From an Experimental Model System', *Annals of the Entomological Society of America*, 112(October 2018), pp. 27–32. doi: 10.1093/aesa/say038.
- Zhao, Z., **Hui, C.**, *et al.* (2019) 'The failure of success: cyclic recurrences of a globally invasive pest', *Ecological Applications*, 29(8), pp. 1–12. doi: 10.1002/eap.1991.