**ANTONI LUQUE**

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| **San Diego State University**  Department of Mathematics and Statistics | [aluque@sdsu.edu](mailto:aluque@sdsu.edu)  <https://www.luquelab.com/>  <https://github.com/luquelab> | 5500 Campanile Drive  San Diego, CA 92182  USA |

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| **POSITIONS** |

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| **Associate Professor**  Department of Mathematics and Statistics, San Diego State University, San Diego, California, USA  Secondary appointment at the Viral Information Institute and the Computational Science Research Center. | 2021 – Present |
| **Assistant Professor**  Department of Mathematics and Statistics, San Diego State University, San Diego, California, USA  Secondary appointment at the Viral Information Institute, the Computational Science Research Center, and Clairemont Graduate University | 2015 – 2021 |
| **Postdoctoral Researcher**  Department of Chemistry, New York University, New York, USA  Supervisor: Professor Tamar Schlick | 2012 – 2014 |

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| **EDUCATION** |

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| **Ph.D. Physics**  Universitat de Barcelona, Barcelona, Spain  Supervisor: Professor David Reguera  Thesis: Structural, mechanical properties, and self-assembly of viral capsids. | Jun. 2011 |
| **M.Sc. Biophysics**  Universitat de Barcelona, Barcelona, Spain | Sept. 2007 |
| **B.S. Physics**  Universitat de Barcelona, Barcelona, Spain | Sept. 2006 |

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| **PUBLICATIONS** | *Uundergraduate mentee, Ggraduate mentee, Ppostdoc mentee, \*equal contribution* |

Total of 25 peer-reviewed journal articles, 1 conference report, and 1 book chapter published with 1,452 citations, h-index 17, and i10-index 21 on October 26, 2022, according to [Google Scholar](https://scholar.google.com/citations?user=ytvnI68AAAAJ&hl=en).

**In Review or In Revision**

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| 27. Silveira, C.B., **A. Luque**, A. Haas, T.N.F. Roach, E.E. George, B. Knowles, M. Little, C.J. Sullivan, L.W. Kelly, R. Brainard, F. Rohwer**,** and B. Bailey, “Pacific-scale relationships between viral predation of bacteria and coral reef health,” **under review** at *BMC Biology*. Impact Factor: 7.43. Q1.  26. AnthenelliU, M., E. JasienG, R. Edwards, B. Bailey, B. Felts, P. Katira, J. Nulton, P. Salamon, F. Rohwer, C.B. Silveira, **A. Luque**, “Phage and bacteria diversification through a prophage acquisition ratchet,” **under revision** for *mBio*. Impact factor:6.747. Q1. Preprint available at bioRxiv: <https://doi.org/10.1101/2020.04.08.028340>. |

**Published Peer-Reviewed Articles**

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| 25. LeeG, D.Y., C. BartelsU, K. McNair, R.A. Edwards, M.A. Swairjo, and **A. Luque**, “Predicting the capsid architecture of viruses from metagenomic data,” *Computational and Structural Biotechnology Journal*, 20:721-732. (**2022**) Impact Factor: 7.271. Q1. <https://doi.org/10.1016/j.csbj.2021.12.032>. **Press***:* Author interview: “Math is magical” ([link](https://sciences.sdsu.edu/math-is-magical/)).  24. CobarrubiaU, A., A. Crispin-SmithU, J. TallU, and **A. Luque**, “Empirical and theoretical analysis of particle diffusion in mucus,” *Frontier in Physics*, 9:594306 (**2021**). Impact Factor: 3.560. Q2. <https://doi.org/10.3389/fphy.2021.594306>. **Press:** Author interview: Capstone project ([link](https://physics.sdsu.edu/alumni-publish-capstone-project-findings-on-particle-flow-in-mucus/)).  23. GeorgeG, E.E., J. MullinixG, F. MengU, B. Bailey, C. Edwards, B. Felts, A. Haas, A.C. Hartmann, B. Mueller, J. Nulton, T.N.F. Roach, P. Salamon, C.B. Silveira, M.J.A. Vermeij, F.L. Rohwer, and **A. Luque**, “Space-filling and benthic competition on coral reefs,” *PeerJ*, 9:e11213 (**2021**). Impact Factor: 2.38. Q1. <https://doi.org/10.7717/peerj.11213>. **Press:** Video abstract and interviews ([link](https://www.youtube.com/watch?v=4l7FS9vBplo)).  22. Silveira, C.B., **A. Luque**, and F. Rohwer, “The landscape of lysogeny across microbial community density, diversity, and energetics.” *Environmental Microbiology* (**2021**). Impact Factor: 4.933. Q1. <https://doi.org/10.1111/1462-2920.15640>.  21. **Luque, A.**, J. MullinixG, K. Williams, M. Anderson, and Janet Bowers, “Aligning calculus with life sciences disciplines: The argument for integrating statistical reasoning,” *PRIMUS*, Feb 5 (**2021**). Q3. Impact factor*:* 0.25. <https://doi.org/10.1080/10511970.2021.1881847>.  20. **Luque, A.**, S. Benler, C. BrownG, D.Y. LeeG, and S. White, “The Missing Tailed Phages: Prediction of Small Capsid Candidates,” *Microorganisms*, 8:1944 (**2020**). Impact Factor: 4.167. Q2. <https://doi.org/10.3390/microorganisms8121944>.  19. **Luque,\* A.** and C.B. Silveira\*, “Quantification of lysogeny caused by phage coinfections in microbial communities from biophysical principles,” *mSystems*, 5:e00353-20 (**2020**). Impact factor*:* 6.280. Q1. <https://doi.org/10.1128/mSystems.00353-20>.  18. Bowers, J.,K. Williams, **A. Luque**, D. Quick, M. Beisiegel, J. Sorensen, J. Kunz, D. Smith, and L. Kayes, “Paradigms for Creating Activities that Integrate Math and Science Topics,” *Journal of Mathematics and Science: Collaborative Explorations*, 16, Article 6 (**2020**). <https://doi.org/10.25891/14f6-by82>.  17. Silveira, C.B., F.H. Coutinho., G. Cavalcanti, S. Benler, M. Doane, L. Dinsdale, R. Edwards, R.B. Francini-Filho, C.C. Thompson, **A. Luque,** F. Rohwer, F. Thompson, “Genomic and ecological attributes of marine bacteriophages encoding bacterial virulence genes,” *BMC Genomics*, 21, 126 (**2020**). <https://doi.org/10.1186/s12864-020-6523-2>. Impact factor: 4.093. Q1. **Press***:* Microbiome Digest ([link](https://microbiomedigest.com/2020/02/12/february-12-2019-2/)).  16. Twarock,\* R. and **A. Luque\***, “Structural puzzles in virology solved with an overarching icosahedral design principle,” *Nature Communications*, 10, 4414 (**2019**). <https://doi.org/10.1038/s41467-019-12367-3>. Impact factor: 11.880. Q1. **Press***:* mentioned by 8 news outlets and 2 blogs, including the Daily Herald and Science Daily ([links](https://www.altmetric.com/details/67306910/news)).  15. JoinerG, K., A. Baljon, J. Barr, F. Rohwer, and **A. Luque**, “Impact of bacteria motility in the encounter rates with bacteriophage in mucus,” *Scientific Reports*, 9, 16427 (**2019**). <https://doi.org/10.1038/s41598-019-52794-2>. Impact factor: 4.525. Q1.  14. Silveira, C.B., **A. Luque**, T.N.F. Roach, H. Villela, A. Barno, K. Green, B. Reyes, E. Rubio-Portillo, T. Le, S. Mead, M. Hatay, B. Bailey, M. Vermeij, Y. Takeshita, A. Haas, and F. Rohwer, “Biophysical and physiological processes causing oxygen loss from coral reefs,” *eLife*, 8, e49114 (**2019**). <https://doi.org/10.7554/eLife.49114>. Impact Factor:7.551. Q1. **Press***:* eLife Digest ([link](https://elifesciences.org/digests/49114/starving-corals-of-oxygen)).  13. Nguyen, S., K. Baker, B.S. Padman, T.A. Weston, K. Schlosser, B. Bailey, M. Lazarou, **A. Luque**, F. Rohwer, R. Blumberg, J.J. Barr, “Bacteriophage transcytosis provides a mechanism to cross epithelial cell layers,” *mBio*, 8, e01874–e01817 (**2017**). <https://doi.org/10.1128/mBio.01874-17> Impact Factor*:* 6.875. Q1. **Press***:* mentioned by 6 news outlets and 4 blogs, including The Atlantic and Science ([links](https://www.altmetric.com/details/29213848/news)).  12. Knowles, B., B. Bailey, L. Boling, M. Breitbart, A. Cobian-Guemes, J. del Campo, R. Edwards, B. Felts, J. Grasis, A.F. Haas, P. Katira, L. Wegley-Kelly, **A. Luque**, J. Nulton, L. Paul, G. Peters, N. Robinett, S. Sandin, A. Segall, C. Silveira, M. Youle, and F. Rohwer, “Variability and host density independence in inductions-based estimates of environmental lysogeny,” *Nature Microbiology*, 2, 17064 (**2017**). <https://doi.org/10.1038/nmicrobiol.2017.64>. Impact factor: 26.819. Q1. **Press***:* mentioned by 3 news outlets and 1 blog, including Science Daily ([links](https://www.altmetric.com/details/19670163/news)).  11. Knowles, B., C.B. Silveira, G.G.Z Silva, S.Q. Quistad, Y.W. Lim, S.E. Sanchez, F.H. Coutinho, K.T. Green, E.R. Hester, J.M. Haggerty, E.E. George, M. Little, C. Thompson, A.F. Haas, T. McDole- Somera, C. Young, N.G. Hisakawa, K.A. Furby, A. Cantu, K. McNair, N.L. Robinett, A.G. Cobian- Guemes, B. Zgliczynski, E. Dinsdale, L.W. Kelly, B. Felts, P. Salamon, S. Sandin, J. Smith, E. Sala, **A. Luque**, R. Brainard, G. Gregoracci, B.A. Bailey, R.A. Edwards, J. Nulton, F. Thompson, F. Rohwer, “Lytic to Temperate Switching of Viral Communities,” *Nature*, 531, 466-470 (**2016**). <https://doi.org/10.1038/nature17193>. Impact factor: 41.456. Q1. **Press***:* mentioned by 7 news outlets and 11 blogs, including Headlines and Global News, Small Things Considered, and This Week in Virology ([links](https://www.altmetric.com/details/6200236/blogs)).  10. **Luque**, **A.,** G. Ozer, and T. Schlick, “Correlation among DNA linker length, linker histone concentration, and histone tails in chromatin,” *Biophysical Journal*, 110, 2309-2319 (**2016**). <https://doi.org/10.1016/j.bpj.2016.04.024>. Impact factor: 3.972. Q1.  9. Ozer,\* G., **A. Luque\***, and T. Schlick, “The chromatin fiber: Multiscale problems and approaches,” *Current Opinion in Structural Biology*, 31, 124-139 (**2015**). <https://doi.org/10.1016/j.sbi.2015.04.002>. Impact factor: 9.344. Q1.  8. **Luque**, **A.,** R. Collepardo-Guevara, S. Grigoryev, and T. Schlick, “Dynamic condensation of linker histone C-terminal domain regulates chromatin structure,” *Nucleic Acids Research*, 42, 7553–7560 (**2014**). <https://doi.org/10.1093/nar/gku491>. Impact factor*:* 19.16. Q1.  7. Hernando-Pérez, M., M. Aznar, E. Pascual Vega, A. Ionel, J.R. Castón, **A. Luque**, J.R. Carrascosa, D. Reguera, and P.J. de Pablo, “The interplay between mechanics and stability of viral cages,” *Nanoscale* 6, 2702–2709 (**2014**). <https://doi.org/10.1039/C3NR05763A>. Impact factor: 7.394. Q1.  6. **Luque**, **A.,** D. Reguera, A. Morozov, J. Rudnick, and R. Bruinsma, “Physics of shell assembly: Line tension, hole implosion, and closure catastrophe,” *Journal of Chemical Physics*. 136, 184507 (**2012**). <https://doi.org/10.1063/1.4712304>. Impact factor: 2.894. Q1.  5. AznarG\*, M., **A. Luque\***, and D. Reguera, “Relevance of capsid structure in the buckling and maturation of spherical viruses,” *Physical Biology*. 9, 036003 (**2012**). <https://doi.org/10.1088/1478-3975/9/3/036003>. Impact factor 2.536. Q2.  4. Reguera, D., **A. Luque**, P. S. Burada, G. Schmid, J. M. Rubí, and P. Hänggi, “Entropic splitter for particle separation,” *Physical Review Letters*. 108, 020604 (**2012**). <https://doi.org/10.1103/PhysRevLett.108.020604>. Impact factor*:* 9.185. Q1. **Press***:* American Physics Society (APS), Physics magazine, <https://physics.aps.org/articles/v5/6>.  3. Carrasco\*, C., **A. Luque\***, M. Hernando-Pérez, R. Miranda, J. L. Carrascosa, P. A. Serena, M. de Ridder, A. Raman, J. Gómez-Herrero, I. A. T. Schaap, D. Reguera, and P. J. de Pablo, “Built-in mechanical stress in viral shells,” *Biophysical Journal*. 100, 1100–1108 (**2011**). <https://doi.org/10.1016/j.bpj.2011.01.008>. Impact factor: 3.972. Q1.  2.  **Luque, A.** and D. Reguera, “The structure of elongated viral capsids,” *Biophysical Journal*. 98, 2993–3003 (**2010**). <https://doi.org/10.1016/j.bpj.2010.02.051>. Impact factor: 3.972. Q1. **Press**:Universitat de Barcelona News, <https://www.ub.edu/web/ub/en/menu_eines/noticies/2010/06/34.html>.  1. **Luque**, **A.,** R. Zandi, and D. Reguera, “Optimal architectures of elongated viruses,” *Proceedings of the National Academy of Sciences USA*. 107, 5323-5328 (**2010**). <https://doi.org/10.1073/pnas.0915122107>. Impact factor: 12.780. Q1. **Press***:* Universitat de Barcelona News, <https://www.ub.edu/web/ub/en/menu_eines/noticies/2010/06/34.html>. |

**Book Chapters**

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| 1. **Luque\*, A.** and D. Reguera\*, “Theoretical Studies on Assembly, Physical Stability, and Dynamics of Viruses,” in M.G. Mateo, editor, Structure, and Physics of Viruses, Springer (**2013**), *Subcellular Biochemistry*, 68, 553-595. <https://doi.org/10.1007/978-94-007-6552-8_19>. |

**Conference Reports**

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| 1. Hufsky, F., D. Beslic, D. Boeckaerts, S. Duchene, E. González-Tortuero, A. J. Gruber, J. Guo, D. Jansen, J. Juma, K. Kongkitimanon, **A. Luque**, M. Ritsch, G. Lencioni Lovate, L. Nishimura, C. Pas, E. Domingo, E. Hodcroft, P. Lemey, M.B. Sullivan, F. Webber, F. González-Candelas, S. Krautwurst, A. Pérez-Cataluña, W. Randazzo, G. Sánchez, M. Marz. "The International Virus Bioinformatics Meeting 2022." *Viruses*.14, no. 5:973 (**2022**). Impact factor: 5.048. Q1. [https://doi.org/10.3390/v14050973​](https://doi.org/10.3390/v14050973). |

**Articles In Preparation**

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| 3. **A. Luque**, S. Nayfach, S. Benler, S. Roux, and S. White, “Modern remnants of ancient small viruses across environments.” *Complete manuscript draft, submit Fall 2022. Target Journal: Nature Microbiology* (Impact factor: 30.960. Q1)*.*  2. Cobo-López, S.P, M. WittG, Forest Rohwer, and **A. Luque**, “Assessing transient dynamics in ecology: A case study on phage and bacteria populations. *Complete manuscript draft, submit Fall 2022. Target Journal: PNAS* (Impact factor: 12.780. Q1)*.*  1. Brown, C.G and **A. Luque**, “pyCapsid: Obtaining the geometrical and mechanical anatomy of viral capsids.” *Complete manuscript draft, submit Fall 2022. Target Journal: Bioinformatics* (Impact factor: 6.937. Q1)*.* |

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| **FUNDING** |

Cumulative funding: 2,136,762 USD. Sources of funding: 2 federal grants, 1 private foundation grant, and 13 intramural grants.

**Funded Grants**

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| 1,501,875 USD – Perpetual viral origins, The Gordon and Betty Moore Foundation, Award #9871, co-P.I. | Nov. 2021 – Dec. 2024 |
| 300,000 USD – Characterization and prediction of viral capsid geometries, National Science Foundation, Award 1951678, Mathematical Biology program, sole P.I. | Sep. 2020 – Aug. 2023 |
| 160,027 USD – Collaborative research: A national consortium for synergistic undergraduate mathematics via multi-institutional interdisciplinary teaching partnership (SUMMIT-P), National Science Foundation, co-PI. | Sep. 2016 – Aug. 2021 |
| 25,025 USD – University Graduate Fellowship Program to support a graduate student, sole P.I. | Aug. 2020 – Sep. 2021 |
| 3,000 USD – Prediction of the decay time of viruses from genomic information, Summer Undergraduate Research Program, San Diego State University, sole P.I. | Jul – Aug. 2020 |
| 3,000 USD – Quantification of conserved structural properties within viral lineages, Summer Undergraduate Research Program, San Diego State University, sole P.I. | May-August 2019 |
| 3,000 USD – Identifying common structural properties among microbial viruses and human viruses, Summer Undergraduate Research Program, San Diego State University, sole P.I. | May-August 2018 |
| 50,000 USD – Viromics: Area of Excellence research proposal, San Diego State University, co-PI. | Jul. 2016 – Jun. 2018 |
| 15,000 USD – Modeling phage-bacteria dynamics in mucus: A multiscale approach to phage therapy, California State University Program for Education and Research in Biotechnology (CSUPERB), sole P.I. | July 2017 – Nov. 2018 |
| 10,000 USD – Mathematical modeling of phage lifestyles and their ecological impact in coral reefs, University Grant Program, San Diego State University, sole P.I. | Jul. 2017 – Jun. 2018 |
| 22,212 USD – Course Redesign with Technology Award, California State University: Calculus for the Life Sciences | Mar. 2017 – Jun. 2018 |
| 35,000 USD – Interdisciplinary graduate fellowships in viromics, San Diego State University, co-P.I. | Sep. 2016 – Aug. 2018. |
| 3,000 USD – Modeling phage survival in limiting bacterial growth conditions, Summer Undergraduate Research Program, San Diego State University, sole P.I.. | May – Aug. 2017 |
| 16,180 USD – Course Redesign with Technology Award, California State University: Methods of Applied Mathematics | Mar. 2016 – June 2017 |
| 2,500 USD – Center for Teaching and Learning Mini-Grant: Inverting Methods of Applied Mathematics I: Learning Glass and Team-Based Learning, San Diego State University, July 2015. | Jul. 2015 – Jun. 2016 |
| 2,500 USD – Structure of phages in the human microbiome, Summer Undergraduate Research Program, San Diego State University, sole P.I. | May – Aug. 2015 |

**Pending Grants**

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| $1,454,160 USD – Identifying the missing structural link between ancient viruses and cellular protein compartments, NASA Exobiology Program. Co-Investigator (P.I. at SDSU with subaward $872,003). | Jul. 2022 |

**Not Funded Grants (last 4 years)**

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| 1,284,728 USD – Identifying the missing structural link between ancient viruses and cellular protein compartments, NASA Exobiology Program. Co-Investigator (P.I. at SDSU with subaward $660,525). | Jun. 2021 |
| 47,748,555 USD – Reefense: ARKWALL, DARPA (Reefense program), Department of Defense, Co-Investigator. | Apr. 2021 |
| 788,343 USD – Identifying the common structural origin of ancient viruses and cell compartments, NASA, Exobiology Program, Co-Investigator (P.I. at SDSU with subaward 4325,847). | May 2020 |
| 2,145,998 USD - Activating Prophage in the Cystic Fibrosis Lung Microbiome. National Institute of Allergy and Infectious Diseases (NIAID-NIH), co-P.I. | Feb. 2019 |
| 1,439,898 USD -Collaborative Research: Metabolic carbon/oxygen decoupling during coral reef phase shifts. National Science Foundation (NSF), Biological oceanography. Submitted Feb 2018, co-P.I. | Feb. 2018 |

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| **AWARDS, FELLOWSHIPS, AND HONORS** |

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| 2020 | Mentors Hall of Fame, Student Research Symposium, San Diego State University. |
| 2019 | Grant Research and Enterprise Writing Fellowship, San Diego State University (3,000 USD). |
| 2019 | Outstanding Faculty Award, College of Sciences, San Diego State University. |
| 2019 | Outstanding Faculty Award, Department of Physics, San Diego State University. |
| 2019 | Senate Teaching Excellence Award nominee, San Diego State University. |
| 2018 | Faculty Innovation and Leadership Award, California State University (10,000 USD). |
| 2018 | Top ePortfolio Award for “Calculus for the Life Sciences: Growth Mindset and Active Learning” as part of the Course Redesigned with Technology Program. |
| 2017 | California State University Program in Education and Research in Biotechnology (CSUPERB) Travel Award, Institute of Mathematical Sciences, Singapore (2,000 USD). |
| 2017 | Outstanding Faculty Award, Department of Physics, San Diego State University. |
| 2017 | Center for Teaching and Learning Academy Award, San Diego State University. |
| 2012 | Thesis Honors by the *Claustre de Doctors* of the Universitat de Barcelona, Spain. |
| 2011 | Thesis Honor Award from the Ph.D. program of the Government of Catalonia, Spain (6,000 EUR). |
| 2010 | Research Fellowship for a research visit at the University of California, Los Angeles, funded by the Government of Catalonia, Spain (7,500 EUR). |
| 2007 | Ph.D. Research Fellowship. Government of Catalonia, Spain, 2007-2010 (60,000 EUR). |
| 2006 | Extraordinary M.S. Award in Biophysics from the Universitat de Barcelona, Spain, 2006**.** |
| 2006 | Undergraduate Research Fellowship. Ministry of Education and Science, Spain (4,000 EUR). |

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| **PRESENTATIONS** |

**Invited Talks and Seminars**

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| 2022 | Physics Seminar, Department of Biology, University of Miami, Coral Gables, FL, USA. |
| 2022 | Biology Seminar, Department of Biology, University of Miami, Coral Gables, FL, USA. |
| 2022 | Ciclo Los Viernes de la Evolución, Colegio Nacional, Mexico City, Mexico (Spanish). |
| 2022 | Mathematics Seminar, Temple University, Philadelphia, PA, USA. |
| 2022 | Mathematical Biology Colloquium, University of California, Merced, CA, USA. |
| 2022 | Computational Science Research Colloquium, San Diego State University, San Diego, CA, USA. |
| 2022 | Physics Colloquium, Florida International University, Miami, FL, USA. |
| 2021 | Biology of Viruses (BIL354), The University of Miami, Miami, FL, USA. |
| 2021 | Interdisciplinary Center for Quantitative Modeling in Biology, University of California, Riverside, USA. |
| 2020 | International Conference on Science and Technology of Complex Fluids, Universidad de Guanajuato, Guanajuato, Mexico. |
| 2020 | Computational Science Research Colloquium, San Diego State University, San Diego, USA. |
| 2019 | International Workshop on Calorimetry and Microbial Ecology, Telluride Science Research Center, Telluride, CO, USA. |
| 2019 | San Diego Microbiology Group, University of California, San Diego, USA. |
| 2018 | Computational Science Research Colloquium, San Diego State University, San Diego, CA,USA. |
| 2018 | York Cross-disciplinary Centre for Systems Analysis, University of York, UK. |
| 2018 | Coral Club, San Diego, CA, USA. |
| 2017 | International workshop on geometry and shape analysis in biological sciences, Institute for Mathematical Sciences, Singapore. |
| 2015 | Computational Science Research Colloquium, San Diego State University, San Diego, USA. |
| 2015 | Southern California Systems Biology Conference, UC Irvine, CA, USA. |
| 2015 | International Year of the Phage Conference, San Diego State University, USA. |
| 2014 | Center for Genomic Regulation, Barcelona, Spain. |
| 2014 | Condensed matter seminar series, Department of Physics, Universitat de Barcelona, Spain. |
| 2014 | Biomathematics and Computational Biology Colloquium, Courant Institute of Mathematical Sciences, New York University, New York, NY, USA. |
| 2014 | Viral Information Institute, San Diego State University, San Diego, CA, USA. |
| 2014 | Physics seminar, Hunter College of The City University of New York, New York, USA. |
| 2013 | Seminar at the Department of Biochemistry and Molecular Biology, Pennsylvania State University, Hershey, USA. |
| 2011 | Seminar condensed matter series, Universidad Autónoma de Madrid, Spain. |
| 2010 | Physics seminar, Brookhaven National Laboratory, Long Island, CA, USA. |
| 2010 | Quantitative biology seminar, University of Southern California, Los Angeles, USA. |
| 2010 | Biophysics seminar, University of California, Los Angeles, USA. |
| 2010 | Seminar, National Center of Biotechnology (CNB- CSIC), Madrid, Spain. |
| 2009 | Condensed matter seminar series, Universitat de Barcelona, Barcelona, Spain. |
| 2009 | Quantitative biology seminar, Institute of Marine Sciences (ICM-CSIC), Barcelona, Spain. |

**Contributed Talks**

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| 2022 | FASEB Virus Structure and Assembly, Southbridge, Connecticut, USA. |
| 2022 | International Virus Bioinformatics Meeting, Valencia, Spain (online). |
| 2020 | International Colloquium Physics and Function of Protein Nanoshells: From Viruses to Biomimetic Nanocontainers, Condensed Matter Division 2020 Meeting, Madrid, Spain (online). |
| 2020 | International Coral Reef Symposium (ICRS), (cancelled due to COVID19). |
| 2011 | FISES’11: XVII National Conference on Statistical Physics, Barcelona, Spain. |
| 2009 | SEV 2009: X Spanish National Conference of Virology, Salamanca, Spain. |

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| **MENTORING** |

**Assistant Professors (1)**

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|  | Uduak George, Department of Mathematics & Statistics, SDSU. | 2020 – Present |

**Postdoctoral Researcher (1)**

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|  | Sergio Cobo-López, biophysical modeling, co-mentorship, SDSU.  Margarita Salas fellowship. | 2021 – Present |

**Doctoral Students (3)**

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|  | Diana Lee, Computational Science, SDSU.  NSF G-STEM Scholarship, Computational Science Qualcomm Award, SIAM CSE Award, Grace Hopper Scholar 2017, SACNAS Scholar,  Viral Information Institute Interdisciplinary Graduate fellowship. | 2016 – Present |
|  | James Mullinix, Computational Science, SDSU.  NSF G-STEM Scholarship, Student Travel Award, Computational Science Tioga Research Award and Natural Selection, Inc. Award. | 2015 – Present |
|  | Kevin Joiner, Computational Science, SDSU.  SMART Fellowship, Department of Defense, NSF G-STEM Scholarship, Computational Science ESET Research Award. | 2015 – 2018 |

**Master Students (10)**

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|  | Aurora Vogel, Applied Mathematics, co-mentorship, SDSU. | 2021 – Present |
|  | Emma Sully, Applied mathematics, lab internship, SDSU*.* | Summer 2021 |
|  | Brandon Ricafrente, Physics, SDSU. | 2020 – Present |
|  | Colin Brown, Physics, SDSU. | 2019 – Present |
|  | Matthew Witt, Physics, SDSU. | 2017 – 2019 |
|  | Emily Jasien, Applied Mathematics, SDSU. | 2015 – 2017 |
|  | Shahir Sikder, Mathematics, SDSU. | 2015 – 2016 |
|  | Emma George, Cell Molecular Biology, co-mentorship, SDSU. | 2015 – 2016 |
|  | Maria Aznar, Biophysics, co-mentorship, Universitat de Barcelona. | 2010 – 2011 |

**Undergraduate Students (17)**

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|  | Vaishnavi Patel, Biology, SDSU. | 2022 – Present |
|  | Caitlin Bartels, Biology, SDSU. | 2020 – Present |
|  | Jessica Vogt, Computer Science, SDSU. | Fall 2021 |
|  | Neilsen Lu, Mathematics, SDSU. | 2020 – 2021 |
|  | Antonio Cobarrubia, Physics, SDSU. | 2018 – 2019 |
|  | Austin Crispin-Smith, Physics, SDSU. | 2018 – 2019 |
|  | Jarod Tall, Physics, SDSU. | 2018 – 2019 |
|  | Meg Robinson, Mathematics, SDSU. | 2018 – 2019 |
|  | Malida Hecht, Physics, SDSU. | 2018 – 2019 |
|  | Nicole Tomassi, Mathematics, SDSU. | 2017 – 2019 |
|  | Kendrick Uy, Mathematics, SDSU. | 2017 – 2018 |
|  | James Hellfeier, Physics, SDSU. | 2017 – 2018 |
|  | Fanwei (Ashley) Meng, Statistics, SDSU. | 2017 – 2018 |
|  | Max Anthenelli, Physics, SDSU. | 2016 – 2018 |
|  | Luke Turner, Physics, SDSU. | Spring 2017 |
|  | Paul Johnson, Mathematics, SDSU. | Summer 2016 |
|  | Diana Lee, Mathematics, SDSU. | 2015 – 2016 |

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| **TEACHING** |

**Doctoral Thesis Committees** (7 total and 3 as chair)

|  |  |  |
| --- | --- | --- |
|  | Jason Baer, Cell Molecular Biology, SDSU – UCSD, committee member. | Ongoing |
|  | Brandie White, Cell Molecular Biology, SDSU – UCSD, committee member. | Ongoing |
|  | Diana Lee, Computational Science, SDSU – CGU, **committee chair**. | Ongoing |
|  | James Mullinix, Computational Science, SDSU – CGU, **committee chair**. | Ongoing |
|  | Jody Fisher, Ecology, Flinders University, Australia, external evaluator. | 2021 |
|  | Kevin Joiner, Computational Science, SDSU – CGU, **committee chair**. | 2018 |
|  | Daniel Cuevas, Computational Science, SDSU – CGU, committee member. | 2018 |

**Master Thesis Committees** (36 total and 5 as chair)

|  |  |  |
| --- | --- | --- |
|  | Aurora Vogel, Applied Mathematics, SDSU, **committee chair**. | Ongoing |
|  | Brandon Ricafrente, Physics, SDSU, **committee chair**. | Ongoing |
|  | Colin Brown, Physics, SDSU, **committee chair**. | Ongoing |
|  | Anneke van der Geer, Cell and Molecular Biology, SDSU, committee member. | Ongoing |
|  | Fernando Vasquez, Chemistry, SDSU, committee member. | Ongoing |
|  | Zach Barvian, Physics, SDSU, committee member. | Ongoing |
|  | Ashton Ballard, Cell and Molecular Biology, SDSU, committee member. | Ongoing |
|  | Jenna Aquino, Cell and Molecular Biology, SDSU, committee member. | Ongoing |
|  | Michelle An, Bioinformatics, SDSU, committee member. | 2021 |
|  | Jon Parsons, Physics, SDSU, committee member. | 2021 |
|  | Angelica Bloomquist, Applied Mathematics, SDSU, committee member. | 2021 |
|  | Allen Zheng, Cell and Molecular Biology, SDSU, committee member. | 2021 |
|  | Ryan Hesse, Ecology, SDSU, committee member. | 2020 |
|  | Alex Escobar, Cell and Molecular Biology, SDSU, committee member. | 2020 |
|  | Danielle Slemons, Cell and Molecular Biology, SDSU, committee member. | 2020 |
|  | Ryan Hesse, Ecology, SDSU, committee member. | 2020 |
|  | Daeheon Oh, Bioinformatics, SDSU, committee member. | 2020 |
|  | Melissa Giluso, Bioinformatics, SDSU, committee member. | 2020 |
|  | Matthew Witt, Physics, SDSU, **committee chair**. | 2019 |
|  | Garrett Scott Gallear, Physics, SDSU, committee member. | 2019 |
|  | Adam Barno, Cell and Molecular Biology, SDSU, committee member. | 2019 |
|  | Tyler Collins, Bioengineering, SDSU, committee member. | 2019 |
|  | Brandon Reyes, Cell and Molecular Biology, SDSU, committee member. | 2018 |
|  | Saichetana Macherla, Bioinformatics, SDSU, committee member. | 2018 |
|  | Emily Jasien, Applied Mathematics, SDSU, **committee chair**. | 2017 |
|  | Ryan Strum, Physics, SDSU, committee member. | 2017 |
|  | Kyle Levi, Bioinformatics, SDSU, committee member. | 2017 |
|  | Matt Gallagher, Cell and Molecular Biology, SDSU, committee member. | 2016 |
|  | Samuel Dickey, Physics, SDSU, committee member. | 2017 |
|  | Benjamin Yeoman, Bioengineering, SDSU, committee member. | 2017 |
|  | Shea Grenier Davies, Cell and Molecular Biology, SDSU, committee member. | 2017 |
|  | Andrew Hatch, Bioinformatics, SDSU, committee member. | 2016 |
|  | Shahir Sikder, Mathematics, SDSU, committee member. | 2016 |
|  | Lance Boling, Cell and Molecular Biology, SDSU, committee member. | 2016 |
|  | Blaire Robinson, Bioinformatics, SDSU, committee member. | 2016 |
|  | Emma George, Cell and Molecular Biology, SDSU, committee member. | 2016 |

**Undergraduate Senior Thesis Supervised** (5)

|  |  |  |
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|  | Antonio Cobarrubia, Physics, SDSU. | 2019 |
|  | Austin Crispin-Smith, Physics, SDSU. | 2019 |
|  | Jarod Tall, Physics, SDSU. | 2019 |
|  | James Hellfeier, Physics, SDSU. | 2018 |
|  | Max Anthenelli, Physics, SDSU. | 2018 |

**Courses Taught**

|  |  |  |
| --- | --- | --- |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 128 students, SDSU. | Spring 2022 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 6 sections, SDSU. | Spring 2022 |
|  | Communication in Interdisc. Appl. Math., MATH 695, 3 units, lecture, 4 students, SDSU. | Spring 2022 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 129 students, SDSU. | Fall 2021 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 6 sections, SDSU. | Fall 2021 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 174 students, SDSU. | Spring 2021 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 6 sections, SDSU. | Spring 2021 |
|  | Communication in Interdisc. Appl. Math., MATH 695, 3 units, lecture, 10 students, SDSU. | Spring 2021 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 105 students, SDSU. | Fall 2020 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 4 sections, SDSU. | Fall 2020 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 125 students, SDSU. | Spring 2020 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 4 sections, SDSU. | Spring 2020 |
|  | Methods of Applied Mathematics II, MATH 342B, 3 units, lecture, 31 students, SDSU. | Spring 2020 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 68 students, SDSU. | Fall 2019 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 3 sections, SDSU. | Fall 2019 |
|  | Methods of Applied Mathematics I, MATH 342A, 3 units, lecture, 45 students, SDSU. | Fall 2019 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 89 students, SDSU. | Spring 2019 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 4 sections, SDSU. | Spring 2019 |
|  | Methods of Applied Mathematics II, MATH 342B, 3 units, lecture, 26 students, SDSU. | Spring 2019 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 95 students, SDSU. | Fall 2018 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 4 sections, SDSU. | Fall 2018 |
|  | Methods of Applied Mathematics I, MATH 342A, 3 units, lecture, 36 students, SDSU. | Fall 2018 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 99 students, SDSU. | Spring 2018 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 4 sections, SDSU. | Spring 2018 |
|  | Methods of Applied Mathematics II, MATH 342B, 3 units, lecture, 27 students, SDSU. | Spring 2018 |
|  | Calculus for the Life Sciences, MATH 124, 3 units, lecture, 83 students, SDSU. | Fall 2017 |
|  | Calculus for the Life Sciences, MATH 124, 1 unit, lab coordinator, 3 sections, SDSU. | Fall 2017 |
|  | Methods of Applied Mathematics I, MATH 342A, 3 units, lecture, 43 students, SDSU. | Fall 2017 |
|  | Methods of Applied Mathematics II, MATH 342B, 3 units, lecture, 42 students, SDSU. | Spring 2017 |
|  | Methods of Applied Mathematics I, MATH 342A, 3 units, lecture, 52 students, SDSU. | Fall 2016 |
|  | Methods of Applied Mathematics II, MATH 342B, 3 units, lecture, 34 students, SDSU. | Spring 2016 |
|  | Methods of Applied Mathematics I, MATH 342A, 3 units, lecture, 49 students, SDSU. | Fall 2015 |
|  | Fluid Mechanics Laboratory, 25 students, Universitat de Barcelona. | Fall 2010 |

**Participation in Teaching Training Workshops**

|  |  |  |
| --- | --- | --- |
|  | California State University Summer Institute: Course Redesign with Technology. | Summer 2018 |
|  | California State University Summer Institute: Course Redesign with Technology. | Summer 2017 |
|  | SDSU Center for Teaching and Learning program: Scholarly Teaching through Evidence and Practice program. | 2016 – 2017 |
|  | SDSU Center for Teaching and Learning reading club: Brown, Roediger III, and McDaniel, “Make it stick: The science of successful learning.” | Summer 2016 |
|  | California State University Summer Institute: Course Redesign with Technology. | Summer 2017 |
|  | Attended 25 SDSU Center for Teaching and Learning workshops. | 2015 – 2016 |
|  | Workshop on Scientific Teaching. | Spring 2013 |

**Curriculum Development and Teaching Innovations**

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|  | In MATH 124, Incorporated GradeScope as an online grading system; Expanded synchronous and asynchronous activities using TopHat in lectures and lab sections. | Fall 2021 |
|  | Development and teaching of a new course: Communication in Interdisciplinary Applied Mathematics (MATH 695). | Spring 2021 |
|  | Implemented online transition for synchronous class combining Zoom, Top Hat, and Crowdmark in MATH 124 and Math 342B. | Spring 2020 |
|  | Developed classroom response system activities using the student response system Top Hat in MATH 124. | Fall 2019 |
|  | Implemented specifications-grading (contract grading) scheme in MATH 124 and Math 342AB. | 2018 –2019 |
|  | Applied backward design for the redesign of MATH 124 using the Knowledge survey instrument. | Fall 2017 |
|  | Created the 600-level graduate course “Communication in interdisciplinary applied mathematics” (MATH 695). | Fall 2018 |
|  | Implemented guidelines for better student climate in team-based learning in MATH 342A and MATH 342B. | 2016 – 2017 |
|  | Produced Learning Glass lectures for the Calculus series and the Math Learning Center. | Fall 2016 |
|  | Developed team-based learning pedagogy and student evaluation for MATH 342A and B. | 2015 – 2016 |
|  | Produced Learning Glass lectures accessible online for MATH 342A and B. | 2015 – 2016 |

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| **SERVICE** |

**Service for the Department**

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|  | Diversity committee. | 2018 – 2022 |
|  | Department website committee. | 2021 – 2022 |
|  | Math & Stats Learning Center committee. | 2016 – 2020 |
|  | Search committee: Biomathematics assistant professor position. | 2016 – 2017 |
|  | Internship committee. | 2016 – 2017 |
|  | Training workshop for teaching assistants. | 2016 – 2017 |
|  | Condensed Matter Seminars Organizer (Universitat de Barcelona): Seminars organized: 41, including graduate students, postdocs, and professors. | 2008 – 2011 |
|  | Fundamental Physics Department Council (University of Barcelona): Elected graduate student representative. | 2008 – 2011 |
|  | Physics Faculty Council (University of Barcelona): Elected graduate student representative. | 2007 – 2011 |
|  | Physics Studies Council (University of Barcelona): Elected undergraduate student representative. | 2005 – 2006 |

**Service for the College**

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|  | Biomath Meeting coordinator. | 2017 – 2022 |
|  | Maximizing Access to Research Careers (MARC) advisory board member. | 2016 – 2022 |
|  | Search committee member (Computational biology assistant professor position). | 2020 – 2021 |
|  | Learning Glass lecture for the provost during his visit to the College of Science. | 2019 – 2020 |
|  | Learning Glass training for students in MBIO 610: Advanced topics in molecular biology. | 2016 – 2018 |
|  | Biomath Meeting coordinator, Diversity committee, Math & Stats Learning Center committee. | 2017 – 2018 |
|  | Workshop on Modeling in Microbiology: NIH-SDSU Bridges Baccalaureate program. | 2015 – 2018 |
|  | Search committee member (Biomathematics assistant professor position), Math Learning Center committee, Internship committee, Teaching Assistant training workshop. | 2016 – 2017 |
|  | Search committee member: Endowed chair in Biomedical research, assistant professor position in virology. | 2015 – 2017 |
|  | Lecture on Structural Virology in MBIO 610: Advanced topics in molecular biology. | 2015 – 2016 |

**Service for the University**

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| --- | --- | --- |
|  | Speaker at the SDSU High-Impact teaching symposium. | 2017 – 2018 |
|  | Speaker at the ITS session for new faculty. | 2016 – 2017 |
|  | Member of the Postdoc Council associated with the Office of Postdoctoral Affairs at New York University. | 2010 – 2011 |

**Service for the Profession**

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| --- | --- | --- |
|  | Review Editor on the Editorial Board of Phage Biology the international journal of Frontier in Microbiology (Impact Factor 4.076). | 2020 – 2022 |
|  | Editorial Board of Soft Matter Physics as a Review Editor for the international journal Frontier in Physics (Impact Factor 2.579). | 2020 – 2022 |
|  | Panel reviewer, National Science Foundation (NSF): Divisions of Molecular Cellular Biosciences (MCB), Division of Mathematical Sciences (DMS), and Division of Geosciences (Geo). Panels: 4. Reviews written: 24. Proposals evaluated: 80. | 2020 – 2022 |
|  | Ad hoc reviewer for the National Science Foundation and the US-Israel Binational Science Foundation (BSF). Proposals reviewed: 3. | 2020 – 2021 |
|  | Reviewer for international journals, including Proceedings of the National Academy of Sciences USA, Nature Communications, Journal of the American Chemical Society (JACS), mSystems, PLoS One, Journal of Chemical Physics (JCP), Physical Review E (PRE), IEEE Transactions of NanoBioscience, and PRIMUS. Articles reviewed: 29. | 2015 – 2021 |
|  | Member of the local committee organizing the XXI Sitges International Conference: Statistical mechanics of molecular biophysics. Sitges (Spain), June 2-6, 2008. | 2007 – 2008 |

**Service for the Community**

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|  | Advisor for robotics and phage therapy project (High School, San Diego). | 2021 – 2022 |
|  | Spring Science Day outreach for the San Diego community at the SDSU Coastal Lab. | 2019 – 2020 |
|  | Summer Workshop on Quantitative Biology for the NIH Bridges Baccalaureate program. | 2015 – 2017 |
|  | “Viruses: The new allies?” (Virus: Els nous aliats?). Talk addressed to graduate and undergraduate students (Universitat de Barcelona). | 2007 – 2008 |
|  | “Entropy: The dictatorship of time and other daily questions” (L’entropia: La dictadura del temps i altres questions de cada dia). Talk addressed to high school students. IES Miquel Biada (High School), Mataró (Spain). | 2007 – 2008 |

**Professional Associations**

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|  | Member of the European Bioinformatics Virus Center. | 2020 – Present |
|  | Contributing Member of the American Society for Microbiology. | 2020 – Present |
|  | Member of the International Society for Viruses of Microorganisms. | 2016 – Present |
|  | Member of the New York Academy of Science. | 2011 – 2012 |
|  | Member of the Interdisciplinary Spanish Network on the Biophysics of Viruses. | 2011 – 2015 |
|  | Member of the Biophysical Society. | 2009 – 2012 |
|  | Member of the Institute of Nanoscience and Nanotechnology of Barcelona. | 2008 – 2011 |

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| **OTHER** |

**Programming languages**

|  |  |
| --- | --- |
|  | FORTRAN, C, C++, Bash, Awk, Python, R, Jekyll, Git. |

**Languages spoken**

|  |  |
| --- | --- |
|  | Spanish (native), Catalan (native), English (fluent), Portuguese (fluent), French (basic). |