LUKE DAVIS

Luxembourg
• Email: luke.davis@uni.lu • Github

EXPERIENCE

Postdoctoral researcher at **University of Luxembourg**
Principle investigator: Ass. Prof. Etienne Fodor *Nov 2020 - Nov 2022*
Visiting researcher at **University of Toronto**
Principle investigator: Prof. Anton Zilman *Sept 2019 - Jan 2020*

EDUCATION

PhD (Theoretical Physics) **University College London**
Supervisors: Prof. Bart W. Hoogenboom, Assoc. Prof. Andela Ŝariċ, and Prof Ian J. Ford *2016 - 2020*
MPhys (Physics) 1st class honours **Swansea University**
Supervisor: Prof. Biagio Lucini *2011 - 2016*
Erasmus (Physics) **UAB Barcelona** *2013 - 2014*

PUBLICATIONS

1. Physical modelling of multivalent interactions in the nuclear pore complex **Luke K. Davis**, Andela Ŝariċ, Bart W. Hoogenboom, and Anton Zilman. ***Biophys. J.* (2021)** (Accepted)
2. Modelling fibrillogenesis of collagen-mimetic molecules Anne E. Hafner, Noemi G. Gyori, Ciaran A. Bench, **Luke K. Davis**, and Andela Ŝariċ. ***Biophys. J.* (2020)**
3. Intrinsically disordered nuclear pore proteins show ideal-polymer morphologies and dynamics **Luke K. Davis**, Ian J. Ford, Andela Ŝariċ, and Bart W. Hoogenboom. ***Physical Review E* (2020)**
4. A programmable DNA-origami platform for organizing intrinsically disordered nucleoporins Qi Shen, Patrick D. E. Fisher, Bernice Akpinar, **Luke K. Davis**, Kenny Chung, David Baddeley, Andela Sâriċ, Thomas Melia, Bart W. Hoogenboom, C. Patrick Lusk, and Chenxiang Lin. ***ACS Nano* (2018)**

SUPERVISION AND TEACHING EXPERIENCE

University College London *2016 - 2019*
• I demonstrated undergraduate courses in computational physics Java (x2), Python (x2), and Mathematica (x2).
• Assisted supervision of bachelors student Kirsten Bark (computer simulations) with Prof. Ian J. Ford (UCL).
• Developed interactive plots and animations (Python in jupyter) to assist in the teaching of a 2nd year course in Statistical Physics with Prof. Bart W. Hoogenboom (UCL).

AWARDS AND HONOURS

UCL Inclusion Awards University College London *2020*
Nomination
Soft Matter poster prize University College London *2018*
PM Davidson Prize Swansea University *2016*
I was awarded the PM Davidson prize for the best theoretical project at masters level.

CERTIFICATES

University of California, Santa Cruz *2020*
Bayesian Statistics: From Concept to Data Analysis (Coursera) (92/100)

COMPUTER SKILLS

• **Programming Languages** C++ (and C), Python, Perl, Java, LaTeX, Mathematica, Matlab, Bash, and R.
• **Operating Systems** Linux, Unix, and Windows.
• **Simulation** LAMMPS, VMD, Ovito, Molecular Dynamics, Monte Carlo, Density Functional Theory, high performance computing, parallel computing (MPI and OpenMP), and freud.
• **Machine Learning** Convex and concave hull algorithms and unsupervised clustering/segmentation algorthms (simulations and in images).
• **Other** Raspberry Pi tinkering, Linux machine building, gaming console emulation tinkering, Github, and making interactive python animations.

CONFERENCES

Fundamental theoretical approaches to the equation of state *2018* Talk, Manchester (UK)
Biosoft Symposium *2018* Talk, Jülich (Germany)
Physical Aspects of Polymer Physics *2017* Poster, Swansea (UK)
Biophysics conference *2016* Poster, Israel

OUTREACH PROJECTS

Black Role Models in STEM UCL, London *2020*
I gave a talk and answered questions at the Black Role Models in STEM event at UCL. This event consisted of Black academics at various stages talking about their experiences and thoughts on being successful in academia.

Diversity Challenge Royal Institution, London *2019*
I founded, led, and co-organized a University Challenge inspired live gameshow that celebrates diverse pioneers in STEM. I made the hardware (Raspberry Pi) and the software (Python) from scratch, the code is available on GitHub. **Grants awarded:** £2000 from the Wellcome Trust and £2,650 from the London centre for Nanotechnology.