

BRADLEY A. A. MARTIN

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🔬 RESEARCH INTERESTS:

Machine learning for materials, atomistic simulation, dielectric/ferroelectric response, electron-phonon interactions and polarons.

📁 CURRENT APPOINTMENT

Postdoctoral Research Fellow (*EPSRC EP/Y014405/1*)

University College London | Oct 2024 – Present

- Project Title: Designing and optimizing polar photovoltaics with physics informed machine learning.
- Principle Investigator: Prof. Keith T. Butler¹.

🎓 EDUCATION

PhD in Physics (*EPSRC DTP – 2446070*)

Imperial College London | 2020 – 2024

- Project Title: Extending Polaron Mobility Theories using the Path Integral Formulation.
- Supervisors: Dr Jarvist Moore Frost² and Prof. Jenny Nelson³.

MSci Physics with Theoretical Physics

Imperial College London | 2016 – 2020

- Project Title: BRST Quantisation & Quantum Gravity in Bosonic String Theory.
- Supervisor: Prof. Dan Waldram⁴.

🏆 SELECTED HONOURS & AWARDS

- **PSDI Ai4Science Grant** – Co-investigator on grant (~£60K) delivering PXR D CrystaLLM tools. *Oct 2025 – Mar 2026*
- **MCC Archer2 Funding** – MCC ARCHER2 computational time, co-PI bid, >100,000 CUs (~£20k). *Jan 2022 – Oct 2024*
- **TYC Travel Grant** – £400 travel grant to attend the Psi-K Conference in Lausanne. *June 2021*
- **Poster Prizes** – ICTP path integral workshop (top 3) and Psi-K Conference (top 5%). *June 2021, Aug 2022*
- **EPSRC DTP Research Studentship Award** – 3.5 years PhD funding *Oct 2020 – Mar 2024*
- **PLANCKS Competition** – Winning team in the PLANCKS UK-wide Theoretical Physics competition. *Feb 2020*

🗨️ SELECTED PRESENTATIONS

- **Invited Talk at CMD32 Austria (accepted)**: "Variational Path Integrals for Lattice Polarons." *Sep 20 – 25 2026*
- **Invited Talk at Purdue University**: "MACE-Field: Electric Response of Materials." *July 20 – 22 2026*
- **APS March Meeting Talk**: "General Learning of the Electric Response of Inorganic Materials." *Dec 6 2025*
- **Zagreb Institute Physics Invited Talk**: "A Variational Path Integral for Lattice Polarons." *Nov 21 2025*
- **PSDI Conference Invited Talk**: "General Learning of the Electric Response of Inorganic Materials." *June 17 2025*
- **CECAM PI-School Invited Talk at Tel Aviv Uni**: "Extending the FVA for Polarons in Real Materials." *June 6 2023*
- **TYC Talk at UCL**: "Extending the FVA for Polarons in Real Materials." *May 25 2023*

💻 SOFTWARE (GITHUB REPOSITORIES)

- **MACE-Field**: field-aware ML interatomic potentials for dielectric response. *mdi-group/mace-field*
- **CrystaLLM-pi Webapp**: python web app for running CrystaLLM-pi. *Neutrino155/CrystaLLM-pi-webapp*
- **PolaronMobility.jl**: variational path integral code for polaron mobility. *Frost-group/PolaronMobility.jl*
- **PolaronQMC.jl**: path integral quantum Monte Carlo for polarons. *Frost-group/PolaronQMC.jl*

👤 MENTORING, TEACHING & SERVICE

- Invited lecturer on CrystaLLM workshop for PSDI & Royce Materials Data Summit *July 28 2026*
- Invited lecturer on diffusion models for chemistry at CAMMLS Spring School on ML *Apr 13 – 17 2026*
- Co-organised ML for Quantum Matter workshops / LLM Hackathon at ICL *Dec 15 2023 & May 3 2024, July 20 2023*
- Ran fortnightly Machine Learning Seminars for computational chemists at ICL *April 2022 – April 2023*
- Co-supervised multiple UROP, MSci, and BSc students at ICL and UCL *Oct 2021 – Sep 2023, Oct 2025 – Present*
- Organised fortnightly condensed-matter book club at ICL and ML reading group at UCL *Dec 2020 – Present*
- GTA for undergrad and MRes computational/electronic-structure courses at ICL *Oct 2019 – Jan 2023*

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