

Tristan Britt, PhD

hello@tristan.britt.xyz | tristan.britt.xyz

LinkedIn: [Tristan Britt](#)

Office Address

Vancouver, BC

Canada

Education

McGill University - Montréal, QC

Doctor of Philosophy (PhD) in Physics, with distinction

Thesis: A systematic study of phonon dynamics at the 2D limit and beyond: an *ab-initio* view of ultrafast diffuse scattering

Indiana University - Bloomington, Indiana

Bachelor of Science in Physics

Thesis: Magnetic Design and Simulation of LEReC Bending Magnet for Relativistic Heavy Ion Collider (RHIC) (See Publications)

Indiana University - Bloomington, Indiana

Bachelor of Science in Applied Mathematics

Skills

- **Languages:** English, French (Conversational), Dutch (Conversational)
- **Programming Languages (Proficient):** C/C++, Python, Go, Rust, Fortran/F90, Matlab, Bash
- **Computational infrastructures:** Unix (Ubuntu, CentOS, MacOS), Windows, HPC cluster programming, ZFS, OpenMP threading, MPI protocol, CUDA-acceleration, Embedded Programming
- **Academic reviewer:** Invited peer reviewer for American Physical Society (APS), American Chemical Society (ACS), *Nature Physics*, *Nature Materials*, *Nature Communications*

Industry Experience

Warlock Labs - Remote

November 2024 - Present

Head of Research

- **Research:** Leading the research division at Warlock, ranging from cryptography to statistical inference, network and graph theory, to market making theory.

Warlock Labs - Remote

June 2024 - November 2024

Senior Research Engineer

- **OEV:** Developing new techniques to realise OEV and MEV in atomic and statistical transaction schema

flojoy.ai - Montréal, QC

Jan 2023 - June 2024

Senior Product Developer

- **Product development:** Providing industry and research perspective on best practices and features for realistic customer use as a replacement of LabVIEW
- **Application development:** Creating custom applications for customers to seamlessly integrate existing and train new highly performant ML models, instrumentation, etc. into the new interface and product

Brookhaven National Laboratory (BNL) - Upton, New York

May 2018 - May 2019

SULI Collaborator

- **LEReC 180° Bending Dipole Magnet:** Dipole magnet designed for use in the Low Energy RHIC electron Cooling Beamline upgrade to the Relativistic Heavy Ion Collider
 - * Designed with OPERA and tested with COMSOL, with data analysis performed with C and Python
- **QXF Beam Magnet:** Magnet for use in the High Luminosity Upgrade to the Large Hadron Collider (HL-LHC) at CERN
 - * Optimised with ROXIE with data analysis performed with Python

Korea Advanced Institute of Science and Technology (KAIST) - Daejeon, South Korea

June 2017 - August 2017

Student Researcher

- **Cryogenic Frustrum Cavity:** A high Q-factor RF cavity for cryogenic use in the Axion Dark Matter eXperiment (ADMX)
- **COMSOL:** A simulation software used to design and test the RF cavity
 - * Used to simulate superconductive properties of cryogenic sputtered Niobium Titanium

Publications

- **A momentum-resolved view of polaron formation in materials:** [npj Comput Mater 10, 178 \(2024\)](#)
- **UEDS as a Tool for Studying Phonon Transport: Phonon Hydrodynamics and Second Sound Oscillations :** [Struct. Dyn. 11, 024101 \(2024\)](#)
- **Unraveling Excimer Formation in Zinc-phthalocyanine using Ultrafast Electron Diffraction:** Accepted at PNAS
- **Ultrafast phonon-diffuse scattering as a tool for observing chiral phonons in monolayer hexagonal lattices:** [Phys. Rev. B 107, 214306](#)
- **Ultrafast phonon dynamics in atomically thin MoS₂:** [Nano Lett. 2022, 22, 12, 4718-4724](#)
- **Extreme Lightwave Electron Field Emission from a Nanotip:** [Phys. Rev. Research 3, 013137](#)
- **High-precision magnetic field measurement and mapping of the LEReC 180° bending magnet using very low field NMR with Hall combined probe (140-350 G):** [Meas. Sci. Technol. 31 075104](#)