

Tristan Britt

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EDUCATION

McGill University - Montréal, QC <i>Doctor of Philosophy (PhD) in Physics (Experimental Condensed Matter)</i>	Expected May 2023 GPA: 3.85/4.00
Thesis: Ultrafast phonon dynamics at the 2D limit: a comparison of ultrafast electron scattering to <i>ab-initio</i> calculations	
Indiana University - Bloomington, Indiana <i>Bachelor of Science in Physics</i>	May 2019 GPA: 3.973/4.0
Thesis: Magnetic Design and Simulation of LEReC Bending Magnet for Relativistic Heavy Ion Collider (RHIC) (See Publications)	
Indiana University - Bloomington, Indiana <i>Bachelor of Science in Applied Mathematics</i>	May 2019 GPA: 3.798/4.0

SKILLS

- **Languages:** English, French (Conversational), Dutch (Conversational), Latin, Attic Greek
- **Software:** Quantum Espresso, COMSOL, CST, OPERA, ANSYS, AutoCAD Suite, LabView, ROXIE, ROOT, Adobe Creative Suite, Microsoft Office Suite
- **Programming Languages (Proficient):** Python, C/C++, Fortran/F90, Matlab, Mathematica, \LaTeX
- **Coding Experience:** Density Functional Theory, Perturbative Density Functional Theory, Object-oriented C++ computational electromagnetics simulations, Finite Element Method, Integral Equation Method, Finite Difference Time Domain (FDTD), High Frequency Methods, RF Design and Analysis, OpenMP, extreme MPI parallelization, CUDA-accelerated implementations

INDUSTRY EXPERIENCE

- Brookhaven National Laboratory (BNL)** - Upton, New York May 2018 - Present
SULI Student 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
- Center For Exploration of Energy and Matter (CEEM)** - Bloomington, Indiana May 2016 - May 2017
Research Assistant
- **Probing of Angstrom-scale Yukawa gravitational affects using neutron interferometry:** Neutron interferometry experiment conceived at CEEM and conducted at the National Institute for Standards and Technology (NIST) in Gaithersberg, Maryland

PUBLICATIONS

- **Ultrafast phonon dynamics in atomically thin MoS₂:** Submitted and accepted at *ACS Nanoletters*
- **Extreme Lightwave Electron Field Emission from a Nanotip:** available <https://doi.org/10.1103/PhysRevResearch.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):** available <https://iopscience.iop.org/article/10.1088/1361-6501/ab7ac1>
- **An Angstrom-Scale Short-Range Yukawa-Interaction Search using Neutron Interferometry and the Neutron Fizeau Effect:** available https://doi.org/10.1142/9789813148505_0071

ADDITIONAL EXPERIENCE, ACHIEVEMENTS & PERSONAL INTERESTS

- Large format film photographer, mainly portraiture with some landscape work
- Kukkiwon 4th Dan and Chungdokwon 4th Dan Black Belt in Taekwondo and Global Hapkido Association 1st Dan Black Belt in Hapkido
- Very much enjoys making playlists, mainly Indie Electronic and RB music
- Awarded the Dean Scholarship, Hutton Honors College Scholarship, and Residential Programs and Services Scholarship during undergraduate studies
- Loves watching theater, cinema, and both science-fiction and thriller films
- Member of the ΠΗΣ Honours Association
- Trained in classical guitar by the Royal Conservatory of Music and the Conservatory College of Music, and admission into the Jacobs School of Music for Classical Guitar Performance
- Strong passion for food, cooking, and hosting dinner parties