KELCI A. MOHRMAN

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EDUCATION

2017-Present: University of Notre Dame, Notre Dame, IN
- Graduate Student, Department of Physics
- Graduate Teaching Assistant: Fall 2017-Spring 2018 (PHYS12320 General Physics II Tutorials)

2015-2017: Michigan Technological University (MTU), Houghton, MI
- B.S. Physics (summa cum laude), April 2017
- Minor: Mathematical Sciences

2014-2015: Northwestern Michigan College (NMC), Traverse City, MI

RESEARCH EXPERIENCE

2017 - Present: Graduate Student in CMS Collaboration (Advisor: Dr. Kevin Lannon)
- Analysis project: Studying associated top quark production within the framework of effective field theory to search for new physics beyond the standard model
    - Large scale production of simulated collision events using the Lobster workflow management tool to harness O(10k) cores (from an opportunistic pool) over the course of several months to produce ~300M simulated collision events
    - Development of the topcoffea framework for late-stage analysis
    - Working in close collaboration with the Notre Dame CCL team to automate the topcoffea environment packaging, make use of the CCL Work Queue tool to scale out the topcoffea application, and explore dynamic run-time task-shaping
- Service Work for CMS collaboration: Maintaining/developing trigger rate monitoring software tools for the trigger system of CMS as a part of the TSG FOG group

Summer 2017: Science Undergraduate Laboratory Internship (SULI), Los Alamos National Lab (Advisor of project: Dr. Brenda Dingus)
- Project: Modeling emission from the Crab Nebula at the interface between the energy ranges of the HAWC gamma-ray observatory and the Fermi γ-ray Space Telescope

2016– 2017: Undergraduate Research, MTU (Advisor of project: Dr. Petra Huentemeyer)
- Project: Search for extended gamma-ray emission from the Geminga pulsar wind nebula using data from the Fermi γ-ray Space Telescope

PAPERS

- B. Tovar et al., "Dynamic Task Shaping for High Throughput Data Analysis Applications in High Energy Physics", accepted to the IEEE International Parallel & Distributed Processing Symposium (IPDPS) 2022.
- R. Goldouzian et al., "Matching in pp → ttW/Z/h + jet SMEFT studies", JHEP 06 (2021) 151, arXiv: 2012.06872.
- CMS Collaboration, "Search for new physics in top quark production with additional leptons in proton-proton collisions at $\sqrt{s}$ = 13 TeV using effective field theory", JHEP 03 (2021) 095, arXiv: 2012.04120.

PRESENTATIONS

- 2022: LHC EFT Working Group meeting - presentation on JHEP 06 (2021) 151
  Presentation title: "Matching in pp → ttW/Z/h + jet SMEFT studies"
- 2021: USCMS annual collaboration meeting - "Run 3 excitement" session presentation
  Presentation title: "Extending the discovery reach of the LHC using EFT to search new physics impacting top quarks"
- 2019: Division of Particles and Fields (DPF) Conference - parallel talk
  Presentation title: "Tools for Trigger Rate Monitoring at CMS"
- 2018: Notre Dame Colleges of Science and Engineering Joint Annual Meeting (COSE-JAM) - poster presentation
  Presentation title: "Tools for Trigger Rate Monitoring at CMS"
- 2018: Association for Women in Science Regional Conference - poster presentation
  Presentation title: "Tools for Trigger Rate Monitoring at CMS"
- 2017: MTU Undergraduate Research Expo - poster presentation
  Presentation title: "The Geminga Pulsar Wind Nebula and the Positron Excess"
- 2017: MTU Physics Department Undergraduate Senior Research Colloquium
  Presentation title: "Searching for Emission from the Geminga Pulsar Wind Nebula in GeV Energies"

FELLOWSHIPS, SCHOLARSHIPS, FUNDING

- 2019: DPF Student Travel Grant
- 2017-2022: University of Notre Dame Clare Boothe Luce Fellowship
- 2016: MTU Summer Undergraduate Research Fellowship (SURF)
- 2015-2017: MTU Transfer Scholarship
- 2014: Northwestern Michigan College Founders Scholarship
- 2014: Northwestern Michigan College W.R. Angell Natural Science Scholarship

AWARDS

- 2018: Notre Dame National Fellowship Research Award (ND-NFRA)
- 2017: NSF Graduate Research Fellowship Program (GRFP) Honorable Mention
- 2017: MTU Physics Department Ian Sheppard Award
- 2015: Northwestern Michigan College Physics Department Award

OUTREACH INVOLVEMENTS

- 2021-2022: Mentor for Notre Dame GSP mentorship program for incoming grad students
- 2021-2022: Northern Indiana Regional Science and Engineering Fair (NIRSEF) Judge
- 2018-2022: Graduate student mentor for the Notre Dame Association for Women in Science (AWIS) STEM Mentorship Program for undergraduate STEM majors
- 2018-2022: Volunteer with Notre Dame QuarkNet Center
- 2015-2017: Member of the MTU SPS Chapter and volunteer at STEM outreach events