

Education

- 2018–present **PhD, Physics**, *McGill University*, “Developing nEXO’s Outer Detector and the LoLX experiment”.
Supervisors: Thomas Brunner, Daryl Haggard
- 2014–18 **Bachelor of Science, Physics**, *McGill University*, Montréal.
Select coursework: Astrophysics, Nuclear Physics, Particle Physics, Hon. Statistical Mechanics, Hon. Classical Mechanics I & II, Hon. Quantum Physics I & II, Algorithms I, Energy & the Environment

Fellowships & Awards

- Fall 2021 **1st Place Talk Prize**, *SNOLAB User’s Meeting 2021*.
- Fall 2020 **Student Award for Contribution to Research**, *McDonald Institute*.
- Fall 2020 **Wolfe Fellowship**, *McGill Department of Physics*, \$6,000.
- 2018–19 **Hydro-Quebec Fellowship**, *McGill Faculty of Science*, \$10,000.
- 2018–19 **Alexander McFee Award**, *McGill Department of Physics*, \$10,000.
- Fall 2018 **Globalink Award**, *MITACS*, \$6,000.
Visiting scholar at PNNL, Stanford University/SLAC National Lab

Publications

Soud Al Kharusi’s updated [Google Scholar page](#).

- 2021 **Adhikari, G.**, et al. (nEXO Collaboration), “[nEXO: Neutrinoless double beta decay search beyond \$10^{28}\$ year half-life sensitivity](#)”, *arXiv:2106.16243*.
- 2021 **Al Kharusi, S.**, et al. (SNEWS 2.0 Collaboration), “[SNEWS 2.0: A Next-Generation SuperNova Early Warning System for Multi-messenger Astronomy](#)”, *New J. Phys.*(2021).
- 2020 P., Lv, ... , **Al Kharusi, S.**, et al. (nEXO Collaboration) , “[Reflectance of Silicon Photomultipliers at Vacuum Ultraviolet Wavelengths](#)”, *IEEE Trans. Nucl. Sci.* vol. 67, no. 12, pp. 2501–2510, Dec. 2020, doi: 10.1109/TNS.2020.3035172.
- 2020 Stiegler, T., ... , **Al Kharusi, S.**, et al. (nEXO Collaboration), “[Event Reconstruction in a Liquid Xenon Time Projection Chamber with an Optically-Open Field Cage](#)”, *arXiv preprint arXiv:2009.10231* (2020).
- 2020 **Al Kharusi, S.**, et al. (EXO-200 Collaboration) , “[Measurement of the Spectral Shape of the \$\beta\$ -Decay of \$^{137}\text{Xe}\$ to the Ground State of \$^{137}\text{Cs}\$ in EXO-200 and Comparison with Theory](#)”, *Phys. Rev. Lett.* 124 (23), 232502 (2020).

- 2020 Njoya, O., ... , **Al Kharusi, S.**, et al. (nEXO Collaboration) , “[Measurements of Electron Transport in Liquid and Gas Xenon using a Laser-driven Photocathode](#)”, *Nucl. Instrum. Meth. A.* 972 (2020) 163965.
- 2020 Nakarmi, P., ... , **Al Kharusi, S.**, et al. (nEXO Collaboration) , “[Reflectivity and PDE of VUV4 Hamamatsu SiPMs in liquid xenon](#)”, *J. Instrum.* 15 (01), (2020): P01019 .
- 2019 Li, Z., ... , **Al Kharusi, S.**, et al. (nEXO Collaboration), “[Simulation of Charge Readout with Segmented Tiles in nEXO.](#)”, *J. Instrum.* 14.09 (2019): P09020.
- 2019 Gallina, G., ... **Al Kharusi, S.**, et al. (nEXO Collaboration), “[Characterization of the Hamamatsu VUV4 MPPCs for nEXO](#)”, *Nucl. Instrum. Meth. A.* 940 (2019): 371-379.
- 2018 **Al Kharusi, S.**, et al. (nEXO Collaboration) , “[nEXO Pre-Conceptual Design Report](#)”, *arXiv preprint arXiv:1805.11142* (2018).

Internal Documents:

- 2020 **S. Al Kharusi**, T. Brunner , “nEXO Outer Detector: Water Temperature Study”, Tech. Rep., nEXO Internal Documents (nEXO-Sim-015), June 2020.
- 2020 **S. Al Kharusi**, T. Brunner, D. Haggard, “Supernovae, Triggering and GPS”, Tech. Rep., nEXO Internal Documents (nEXO-Sim-016), June 2020.
- 2020 **S. Al Kharusi**, T. Brunner, “nEXO Outer Detector Size Study”, Tech. Rep., nEXO Internal Documents (nEXO-Sim-012), May 2020.
- 2019 **S. Al Kharusi** , “Cosmogenic Backgrounds to nEXO”, Tech. Rep., nEXO Internal Documents (nEXO-Sim-018), January 2019.

Conference Presentations

Oral Presentations:

- 2021 **S. Al Kharusi**, “Neutrinoless double beta decay with nEXO” (invited), McDonald Institute Annual General Meeting (virtual), August 2021.
- 2020 **S. Al Kharusi**, L.J Kaufman, “nEXO Outer Detector and Muon Veto”, APS April Meeting (virtual), April 2020 ([video](#)).
- 2020 **S. Al Kharusi**, “Supernova Neutrino Detection with nEXO”, Canadian Multimessenger Astrophysics Workshop, Montréal, QC, January 2020.
- 2019 **S. Al Kharusi**, “Developments of nEXO's Outer Detector”, CAP Annual Meeting, Simon Fraser University, Vancouver, BC, June 2019.
- 2019 **S. Al Kharusi**, “Supernova Neutrinos with nEXO”, Centre for Research in Astrophysics of Quebec (CRAQ) Annual Meeting, Lac-à-l'Eau-Claire, QC, May 2019.
- 2019 **S. Al Kharusi**, “Supernova Detection with nEXO (plenary)”, nEXO Collaboration Meeting, C.S.U. Fort Collins, CO, January 2019.
- 2017 **S. Al Kharusi**, “Developing an Electroluminescent Light Source for nEXO”, Canadian Undergraduate Physics Conference, Carleton University, Ottawa, ON, October 2017.

Poster Presentations:

- 2020 **S. Al Kharusi**, “The nEXO Outer Detector and Muon Veto ([video pitch](#))”, Neutrino 2020 (virtual), June 2020.

- 2019 **S. Al Kharusi**, “Supernova Neutrinos with nEXO ([poster](#))”, CASCA Annual Meeting, McGill University, June 2019.
- 2019 **S. Al Kharusi**, “Supernova Neutrinos with nEXO”, SNEWS 2.0 Workshop, Laurentian University, June 2019.

Employment

- Winter 2019 **Teaching Assistant, PHYS 258**, *McGill University*, Montréal.
- Demonstrated laboratory procedures and safety measures
 - Assisted in teaching concepts in experimental physics, evaluated student performance
 - Evaluated student performance, graded lab reports
- Summer 2016 **Undergraduate Assistant Lab Technician**, *McGill University*, Montréal.
- Redeveloped the PHYS 257/258 courses at McGill University: introduced new experiments, produced new lab manuals, and purchased new equipment
 - Produced instructional videos for future TAs and lab technicians

Extracurricular Activities & Service Work

- 2021 **Diversity, Equity, and Inclusion Committee**, *nEXO Collaboration*.
- Established a nEXO undergraduate mentorship program with two co-leads on the project
- 2021 **HQP Advisory Board (Events Director)**, *McDonald Institute*.
- Nominated to the inaugural Highly Qualified Personnel advisory board
 - Co-lead of software and technical programming at the [EIEIOO Summer School 2021](#).
- 2021 **Organizing Committee**, *WNPPC*.
- Designed the Gather.town virtual conference environment for participant proximity chat for Winter Nuclear and Particle Physics Conference
 - Acted as chair during one morning session
 - Aided in design, structure, and content of welcome booklet
- 2020-21 **MGAPS Representative to PGSS**, *McGill University*.
- Elected representative of the McGill Graduate Association of Physics Students to the Post Graduate Student Society of McGill
- 2020 **S.O.C & L.O.C**, [Canadian Multimessenger Astrophysics Workshop 2020](#), Montreal.
- Lead the venue selection and organization process
 - Aided in scheduling local program and recruitment for speaker list
- 2017-18 **Vice-President (Internal Affairs)**, *Science Undergraduate Society of McGill*.
- Managed \$250k budget to host socio-cultural events for science undergraduates
 - Liaised with students, faculty, and city
 - Held a seat on the Science Undergraduate General Council, drafted and passed motions affecting over 4000 undergraduates
- 2016-17 **President**, *McGill Society of Physics Students*, Montreal.
- Elected as leader of undergraduate physics representatives
 - Voted departmental council of the year for the faculty of science (2016-17)

Skills

Software Python, C++, bash, GEANT4, ROOT, HTML

Languages English - fluent, Arabic - fluent