Dossier Research Documents, by Title and Category

Jordan C. Hanson, PhD
Assistant Professor of Physics and Computer Science
Department of Physics and Astronomy
Whittier College

Document Title (Research Papers)	*Journal or other Resource*	*Category*
Complex Analysis of Askaryan Radiation: A Fully Analytic Model in the Time-Domain	Physical Review D	The Askaryan Effect, neutrino physics and IceCube Gen2
In situ, broadband measurement of the radio frequency attenuation length at Summit Station, Greenland	Accepted for publication in the Journal of Glaciology	Antarctic and Greenlandic ice properties
Broadband RF Phased Array Design with MEEP: Comparisons to Array Theory in Two and Three Dimensions	Electronics Journal	Computational Electromagnetism, RF antenna design and fabrication
Broadband RF Phased Array Design for UHE neutrino detection	Proceedings of 37th ICRC	Computational Electromagnetism, RF antenna design and fabrication
Design and sensitivity of the Radio Neutrino Observatory in Greenland (RNO-G)	Journal of Instrumentation	Neutrino physics, drones
Probing the Angular and Polarization Reconstruction of the ARIANNA Detector at the South Pole	Journal of Instrumentation	Neutrino physics, Antarctic ice properties
NuRadioMC: simulating the radio emission of neutrinos from interaction to detector.	European Physical Journal C	The Askaryan effect, Antarctic ice properties
White Paper: ARIANNA-200 high energy neutrino telescope."	The arXiv: arXiv:2004.09841	The Askaryan effect, Antarctic ice properties
Neutrino Vertex Reconstruction with In-Ice Radio Detectors using Surface Reflections and Implications for the Neutrino Energy Resolution	Journal of Cosmology and Astroparticle Physics	Antarctic ice properties, the Askaryan effect
A Search for Cosmogenic Neutrinos with the ARIANNA Test-Bed using 4.5 Years of Data	Journal of Cosmology and Astroparticle Physics	Neutrino physics, the Askaryan effect, Antarctic ice properties
Observation of classically 'forbidden' electromagnetic wave propagation and implications for neutrino detection	Journal of Cosmology and Astroparticle Physics	Antarctic ice properties
Measurement of the real dielectric permittivity of glacial ice	Astroparticle Physics Journal	Antarctic ice properties
Complex Analysis of Askaryan Radiation: A Fully Analytic Treatment including the LPM effect and Cascade Form Factor	Astroparticle Physics Journal	The Askaryan effect
Radio detection of air showers with the ARIANNA experiment on the Ross Ice Shelf	Astroparticle Physics Journal	Cosmic ray physics, the Askaryan effect
First Upper Limits on the Radar Cross Section of Cosmic-Ray Induced Extensive Air Showers	Astroparticle Physics Journal	Cosmic ray physics
Live-time and sensitivity of the ARIANNA Hexagonal Radio Array	Proceedings of the 36th ICRC	Neutrino physics, Antarctic ice properties, the Askaryan effect

Performance of the ARIANNA Hexagonal Radio Array	Proceedings of the 36th ICRC	Neutrino Physics, Antarctic ice properties, the Askaryan effect
A First Search for Cosmogenic Neutrinos with the ARIANNA Hexagonal Radio Array	Astroparticle Physics Journal	Neutrino Physics, Antarctic ice properties, the Askaryan effect
Time-Domain Response of the ARIANNA Detector	Astroparticle Physics Journal	Computational Electromagnetism, RF antenna design and fabrication
Radar absorption, basal reflection, thickness and polarization measurements from the Ross Ice Shelf, Antarctica	Journal of Glaciology	Antarctic ice properties
Design and Performance of the ARIANNA HRA-3 Neutrino Detector Systems.	IEEE Transactions on Nuclear Science	RF antenna design and fabrication
Telescope Array Radar (TARA) observatory for Ultra-High Energy Cosmic Rays.	Nuclear Instrumentation and Methods in Physics Research A	Computational Electromagnetism, RF antenna design and fabrication
Design and Performance of the Autonomous Data Acquisition System for the ARIANNA High Energy Neutrino Detector	IEEE Transactions on Nuclear Science	Computational Electromagnetism, RF antenna design and fabrication
Ross Ice Shelf Thickness, Radio-Frequency Attenuation and Reflectivity: Implications for the ARIANNA UHE Neutrino Detector	Proceedings of the 32nd ICRC	Antarctic ice properties
A prototype station for ARIANNA: A detector for cosmic neutrinos	Nuclear Instrumentation and Methods in Physics Research A	Computational Electromagnetism, RF antenna design and fabrication
Detection and Imaging of He2 Molecules in Superfluid Helium	Physical Review Letters	Nuclear physics, particle physics

Applied Research Projects Documentation	*Project origin*	*Category*
Research Application: Exploration of Antarctic Ice Sheets with Drones	Whittier College internal project	Antarctic exploration with drones
Research Application: Workforce Development for Naval Surface Warfare Systems (NSWC), Corona Division	Office of Naval Research project	Workforce development
RF Field Engineer Course: A Practical Introduction	Office of Naval Research project	Workforce development
Introduction to GPS M-Code Signals for Onboarding of Navy Personnel	Office of Naval Research project	Workforce development

Diversity, Equity, and Inclusion Documentation	*Project origin*	*Category*
Schedule of activities for the Artemis Program, a STEM recruitment and research opportunity for young women from local high schools	Whittier College internal project	STEM recruitment and development
Diversity, Equity & Inclusion Innovative Initiatives Grant Proposal	Whittier College internal project	DEI in intro. STEM
Changing Glaciers: So Much More than Sea Level Rise	Whittier Scholars Program Undergraduate Thesis	Interdisciplinary research