

Curriculum Vitae of A. Nepomuk Otte

Appointments:

2023-	Professor of Physics	Georgia Institute of Technology, Atlanta, GA, USA
2018-2023	Associate Professor	Georgia Institute of Technology, Atlanta, GA, USA
2012-2018	Assistant Professor	Georgia Institute of Technology, Atlanta, GA, USA

Professional Preparation:

1998-2003	Physics Diploma	University Heidelberg, Germany Diploma thesis in Prof. Uli Lynen's group, GSI, Darmstadt Supervisor: Prof. Herbert Orth
2004-2007	Doctorate	Technical University Munich, Germany Thesis in Prof. Masahiro Teshima's group, MPI for Physics, Munich Supervisor: Dr. Eckart Lorentz
2007-2008	Postdoctoral	Humboldt University, Berlin and MPI for Physics, Munich, Germany Mentor: Dr. Thomas Schweizer
2008-2011	Postdoctoral	Santa Cruz Institute for Particle Physics (SCIPP) at the University of California, Santa Cruz, CA, USA Mentor: Prof. David Williams

Recognitions and Awards:

2008-2010	Feodor Lynen Postdoctoral Fellow of the Humboldt Foundation
2016	W. Roane Beard Outstanding Teaching Award

Teaching Experience:

2016	Development of an advanced electronics/detector lab course for undergraduate and graduate physics (at Georgia Tech).
2012-	I am teaching core curriculum courses for undergraduate and graduate students in physics (at Georgia Tech).
2010	Course in experimental techniques in high-energy physics and astroparticle physics for graduate students (at UCSC).
2005	Supervising undergraduate lab courses (at the Technical University, Munich).

Ongoing Research Projects:

Trinity (<https://trinity-observatory.org>) is an instrument I proposed for observing of very-high and ultra-high energy neutrinos. It is most sensitive between 1 PeV and 1 EeV and bridges the observational gap between IceCube/KM3NET and radio detectors. We just completed the first phase of *Trinity* and started taking data with the *Trinity* Demonstrator in October 2023.

POEMMA/EUSO-SPB2 tries to do the same as *Trinity* but from space and sub-orbital altitudes, respectively. My group developed the camera and readout for the EUSO-SPB2 Cherenkov telescope. We had our flight in May 2023 and succeeded in the first observation of cosmic-ray air showers. EUSO-SPB2 was a pioneering experiment. We are currently analyzing the data recorded during the flight.

CTA: The Cherenkov Telescope Array (CTA) is the next-generation very-high-energy gamma-ray observatory. Georgia Tech is a CTA member institute with me as the PI. Within CTA, I am participating in the US-led effort to develop the Schwarzschild-Couder telescope (SCT) as a candidate for the mid-size telescopes of CTA. I co-led the camera development of the camera for the prototype SCT and I am currently the project manager of the camera upgrade. My group at Georgia Tech has designed the focal plane and the front-end electronics of the prototype telescope.

GaN Photodetector Development: In collaboration with colleagues from the electrical engineering department at Georgia Tech, Prof. Dupuis and Prof. Shen, I am developing (V)UV-sensitive photon detectors on GaN basis, with the goal of transferring the SiPM concept onto GaN.

Current Funding

1. **Title:** WoU-MMA: Demonstrating Ultrahigh-Energy Neutrino Observations with Compact Air-Shower Imaging Telescopes

Source of Support: National Science Foundation

Total Award Amount: \$823,130

Total Award Period Covered: 9/2021 - 8/2024

Role: Principal Investigator

Comments: This award has funded the *Trinity* Demonstrator and its operation. My group has developed the telescope, camera, and readout. We deployed the telescope in Summer 2023.

2. **Title:** UHE-Neutrino Searches with Air-Shower Imaging from EUSO-SPB2
Source of Support: NASA
Total Award Amount: \$1,645,3639
Total Award Period Covered: 1/2022 - 1/2026
Role: Principal Investigator
Comments: This award funds our activity to search for astrophysical neutrinos with a long-duration balloon flight. The mission is called EUSO-SPB2 and is the precursor for the planned POEMMA space mission. At Georgia Tech, my group developed the camera and readout system for the Cherenkov telescope on EUSO-SPB2. The flight took place in May 2023. We currently analyze the data recorded during the flight.
3. **Title:** MRI Consortium: Development of a Wide Field-of-View Camera for the Schwarzschild-Couder Gamma-Ray Telescope
Source of Support: National Science Foundation
Total Award Amount: \$347,273 (Georgia Tech Part)
Total Award Period Covered: 9/2018 - 8/2024
Role: Co-Investigator
Comments: Funding supports my group's contribution to the mechanical integration of new silicon photomultipliers in the focal plane of the pSCT camera and the evaluation of preamplifiers. The majority of the funding pays for management professionals at Georgia Tech who helps me and the PI (Prof. Reshmi Mukherjee) with the technical aspects of managing the upgrade project. I am the project manager of the camera upgrade.
4. **Title:** Research and Development of High-Sensitivity UV Solid-State Photon-Counting Devices for High-Energy Physics and Related Fields
Source of Support: Department of Energy
Total Award Amount: \$420,000
Total Award Period Covered: 7/2021 - 3/2024
Role: Principal Investigator
Comments: This grant pays for the development of single photon counters with III-V compound semiconductors. Our goal is to transfer the silicon photomultiplier concept to GaN and AlGaN an excellent UV and deep UV sensitive detector material. Funding pays for the fabrication and characterization of devices and one graduate student.

Atlanta, GA, December 21, 2023