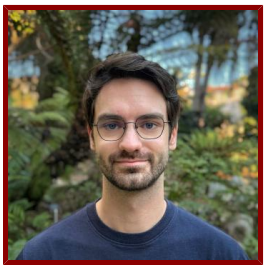
Stanford



Antoine Amy

Postdoctoral Scholar, Physics

Curriculum Vitae available Online

Bio

BIO

Antoine Amy is a postdoctoral scholar in Physics at Stanford University, working with Professor Giorgio Gratta. His research focuses on Mössbauer spectroscopy for fundamental physics.

He earned his Ph.D. in subatomic physics from IMT Atlantique in 2026. His doctoral research at SUBATECH and the University of Massachusetts Amherst focused on liquid-xenon detector development for the nEXO neutrinoless double-beta decay experiment. He holds a master's degree in Fundamental Physics and Applications (2023) and a bachelor's degree in Fundamental Physics (2021) from Nantes Université.

PROFESSIONAL EDUCATION

- Bachelor's degree (Licence), Nantes Université , Fundamental Physics (2021)
- Master's degree, Nantes Université , Fundamental Physics and Applications — Research in Subatomic Physics (2023)
- Ph.D., IMT Atlantique , Subatomic Physics (Nuclear and Particle Physics) (2026)

STANFORD ADVISORS

- Giorgio Gratta, Postdoctoral Faculty Sponsor

LINKS

- HAL academic profile and publications: https://cv.hal.science/antoine-amy
- arXiv publications: https://arxiv.org/a/amy_a_1

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

My research focuses on Mössbauer spectroscopy for fundamental physics. At Stanford, I work with Giorgio Gratta on the development of a Mössbauer spectroscopy apparatus and the exploration of applications of Mössbauer transitions.

My broader interests include precision measurements, cryogenic instrumentation, and detector development for rare-event searches. My doctoral research within the nEXO collaboration addressed electronegative impurity transport and outgassing in liquid-xenon detectors, Monte Carlo studies of radioactive backgrounds, and the development of cryogenic circulation and cooling systems.

LAB AFFILIATIONS

- Giorgio Gratta (12/14/2026)

Publications

PUBLICATIONS

- **Design of a high voltage delivery system for noble liquid time projection chambers** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*

  Saldanha, R., Pagani, L., Angelico, E., Bernard, E., Chana, B., Delaquis, S., DeVoe, R., Elbeltagi, M., Ferrara, S., Goeldi, D., Gornea, R., Odian, A., Ortega, et al

  2026; 1091

- **Ultra-pure nickel for structural components of low-radioactivity instruments** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*

  Roosendaal, T. J., Overman, C. T., Ortega, G. S., Schlieder, T. D., Rocco, N. D., Horkley, L. S., Hobbs, K. P., Harouaka, K., Orrell, J. L., Acharya, P., Amy, A., Angelico, E., Anker, et al

  2026; 1087

- **Ultra-sensitive radon assay using an electrostatic chamber in a recirculating system** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*

  Anker, A., Breur, P. A., Mong, B., Acharya, P., Amy, A., Angelico, E., Arnquist, I. J., Atencio, A., Bane, J., Belov, V., Bernard, E. P., Bhatta, T., Bolotnikov, et al

  2026; 1081

- **Impurities and radioactive background control in a cryogenic liquid-xenon 0νββ rare-event detector**

  Amy, A.

  IMT Atlantique.

  2026 ; PhD thesis (2026IMTA0549):

- **Estimating cosmogenic backgrounds in nEXO at SNOLAB using Geant4 and FLUKA**

  Ross, R., Al Kharusi, S., Brunner, T., et al

  arXiv.

  2026 ; arXiv (2611.00529):

- **The nEXO Radioassay Program**

  MacLellan, R., Acharya, P., Aharmim, B., et al

  arXiv.

  2026 ; arXiv (2604.15406):

- **Sensitivity of nEXO to 136Xe charged-current interactions: Background-free searches for solar neutrinos and fermionic dark matter** *PHYSICAL REVIEW D*

  Richardson, G., Lenardo, B. G., Yu, M., Gallacher, D., Saldanha, R., Acharya, P., Al Kharusi, S., Amy, A., Angelico, E., Anker, A., Arnquist, I. J., Atencio, A., Bane, et al

  2025; 112 (10)

- **Impact of Nickel Cryostats in the nEXO Detector** *JRJC 2024 – Journées de Rencontres Jeunes Chercheurs*

  Amy, A.

  2025: 127–132

- **Characterization of CRYO ASIC for charge readout in the nEXO experiment**

  Li, Z., Yu, M., Angelico, E., et al

  arXiv.

  2025 ; arXiv (2512.11116):

- **Supernova electron-neutrino interactions with xenon in the nEXO detector** *PHYSICAL REVIEW D*

  Hedges, S., Al Kharusi, S., Angelico, E., Brodsky, J. P., Richardson, G., Wilde, S., Amy, A., Anker, A., Arnquist, I. J., Arsenault, P., Atencio, A., Badhrees, I., Bane, et al

  2024; 110 (9)

- **Overcoming photobleaching in imaging of single barium atoms in a solid xenon matrix** *PHYSICAL REVIEW RESEARCH*

  Yvaine, M., Fairbank, D., Soderstrom, J., Taylor, C., Stanley, J., Walton, T., Chambers, C., Iverson, A., Fairbank, W., Al Kharusi, S., Amy, A., Angelico, E., Anker, et al

2024; 6 (4)