Stanford



Thomas Frosio

Radiation Physicist, Environmental Safety & Health

Bio

BIO

Thomas Frosio is a Senior Radiation Physicist at SLAC National Accelerator Laboratory. He specializes in radiation safety, accelerator physics, and advanced Monte-Carlo simulations using the FLUKA code. His expertise focuses on radiation hazard assessments and beam interactions, notably contributing to the LCLS-II High Energy (HE) upgrade and the Cryomodule Repair and Maintenance Facility (CRMF).

With a Ph.D. in Nuclear Physics, Dr. Frosio ensures the radiation protection commissioning of large-scale accelerator facilities. He is also an internationally recognized expert, serving as a member of the IAEA TRANSSC expert committee.

CURRENT ROLE AT STANFORD

Senior Medical/Radiation Physicist at SLAC National Accelerator Laboratory, specializing in the safety design and radiological commissioning of high-power electron accelerators.

HONORS AND AWARDS

- Qualification for Associate Professor Functions, France, Ministère de l'Éducation Nationale et de la Recherche (2016)

EDUCATION AND CERTIFICATIONS

- Master’s Degree, Université de Lorraine , Fundamental and Applied Mathematics (2016)
- Ph.D. in Nuclear Physics, Université Grenoble Alpes (2012–2015) , Focus: Particle transport, interaction with matter, and numerical simulations (2015)
- Master’s Degree, IMT Atlantique / Ecole des Mines , Nuclear Reactor Physics (2012)
- Master’s Degree, IMT Mines Albi , Energy Science (2011)

PROJECTS

- Head of Radiation Physics operations of the Linear Accelerator Facility
- Lead Radiation commissioning of LCLS-II High Energy upgrade
- Radiation physics architect of the Low Emittance Injector Tunnel for the High Energy upgrade of LCLS-II
- Radiation physics architect of the Cryomodule, Repair and Maintenance Facility

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- IAEA TRANSSC International Expert
- PRISMAP: Participation in the European medical isotope program for high-purity radionuclide production.

LINKS

- Linkedin: www.linkedin.com/in/thomas-frosio
- Scholar: https://scholar.google.fr/citations?user=Zzxx21oAAAAJ&hl=fr
- Researchgate: https://www.researchgate.net/profile/Thomas-Frosio?ev=hdr_xprf

Professional

PROFESSIONAL INTERESTS

Radiation Protection & Shielding Design

Monte-Carlo Simulations (FLUKA, MCNP, GEANT4)

Accelerator Physics

Field Emission characterization and simulation

Radiation monitoring

LCLS-II High Energy (HE) Commissioning

Reactor Physics

Radioactive Waste Management & Characterization

Nuclear Safety Regulations (IAEA, DOE)

Publications

PUBLICATIONS

- **Radiological commissioning of LCLS-II superconducting linac at < 10 kW beam power** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*
  Frosio, T., Allan, J., Bauer, J., Blaha, J., Brogonia, H., Ding, Q., Fisher, A. S., Rosenstrom, A., Santana-Leitner, M., Rokni, S.
  2027; 1093
- **Radiation safety design of the SLAC Cryomodule Repair and Maintenance Facility using a physics-based field emission source model.** *Applied radiation and isotopes : including data, instrumentation and methods for use in agriculture, industry and medicine*
  Adadi, S., Frosio, T., Lavezzari, G., Santana-Leitner, M., Rokni, S., Rosenstrom, A., Dewji, S. A.
  2026; 237: 112826
- **Radiation physics design of the new low emittance injector tunnel for LCLS-II-HE upgrade** *APPLIED RADIATION AND ISOTOPES*
  Frosio, T., Bendanillo, I., Blaha, J., Leitner, M., Rosenstrom, A., Rokni, S., Turkmen, L.
  2026; 233: 112574
- **Radiation Physics commissioning of LCLS-II superconducting Linac. Gun and cryomodules commissioning** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*
  Frosio, T., Allan, J., Blaha, J., Brogognia, H., Rokny, S., Leitner, M., Aderhold, S., Bai, M., Littleton, S.
  2026; 1086
- **Transfer functions for Q_A /Q_B international regulatory limits for the safe transport of radioactive materials** *JOURNAL OF RADIOLOGICAL PROTECTION*
  Frosio, T., Thomas, S., Endres, J., Eberhardt, H., Louis, B., Cabianca, T., Brown, I., Foster, M., Menaa, N., Bertreix, P.
  2024; 44 (3)
- **Skin dose contamination conversion coefficients. Benchmark with three simulation codes** *JOURNAL OF RADIOLOGICAL PROTECTION*
  Frosio, T., Bertreix, P., Menaa, N., Thomas, S., Eberhardt, H., Endres, J.
  2022; 42 (1)
- **Calculation and benchmark of fluence-to-local skin equivalent dose coefficients for neutrons with FLUKA, MCNP, and GEANT4 Monte-Carlo codes** *JOURNAL OF RADIOLOGICAL PROTECTION*
  Frosio, T., Bertreix, P., Menaa, N., Thomas, S.

2021; 41 (3): 564-578

- **Photons fluence to local skin Dose coefficients and benchmark with three Monte-Carlo codes. Application to the computation of radioactive material transport limits** *APPLIED RADIATION AND ISOTOPES*
  Frosio, T., Bertreix, P., Menaa, N., Thomas, S., Eberhardt, H., Endres, J.
  2021; 176: 109892

- **Qualification of the activities measured by gamma spectrometry on unitary items of intermediate-level radioactive waste from particle accelerators** *APPLIED RADIATION AND ISOTOPES*
  Dyrcz, P., Frosio, T., Menaa, N., Magistris, M., Theis, C.
  2021; 167: 109431

- **Qualification of gamma spectrometry measurement for the radiological characterization of mixed VLLW cables in particle accelerators** *APPLIED RADIATION AND ISOTOPES*
  Rimlinger, M., Frosio, T., Menaa, N., Magistris, M., Theis, C.
  2020; 166: 109419

- **An enhanced characterization process for the elimination of very low level radioactive waste in particle accelerators** *APPLIED RADIATION AND ISOTOPES*
  Frosio, T., Bertreix, P., Magistris, M., Menaa, N., Michaud, R., Rimlinger, M., Theis, C., Ulrici, L., Zaffora, B.
  2020; 166: 109312

- **Generation of low-energy neutrons cross-sections for the Monte Carlo code FLUKA and the deterministic code ActiWiz** *APPLIED RADIATION AND ISOTOPES*
  Frosio, T., Magistris, M., Theis, C., Vincke, H.
  2020; 166: 109352

- **Classification of radiological objects at the exit of accelerators with a dose-rate constraint** *APPLIED RADIATION AND ISOTOPES*
  Frosio, T., Dumont, G., Froeschl, R., Iliopoulou, E., Magistris, M., Menaa, N., Roesler, S., Theis, C., Vincke, H., Vincke, H.
  2020; 165: 109303

- **On the holistic validation of electronic materials compound for irradiation study-Experimental and calculated results** *JOURNAL OF RADIOANALYTICAL AND NUCLEAR CHEMISTRY*
  Frosio, T., Menaa, N., Magistris, M., Theis, C.
  2020; 326 (1): 11-24

- **New methodology for in -situ classification of radiological items with a clearance monitor system** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*
  Frosio, T., Menaa, N., Dumont, G., Aberle, F.
  2020; 966

- **Radiological characterization of large electromagnets in view of their elimination as very low-level wastes** *NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION A-ACCELERATORS SPECTROMETERS DETECTORS AND ASSOCIATED EQUIPMENT*
  Frosio, T., Magistris, M., Menaa, N., Michaud, R., Rimlinger, M., Theis, C.
  2020; 959

- **A novel technique for the optimization and reduction of gamma spectroscopy geometry uncertainties** *APPLIED RADIATION AND ISOTOPES*
  Frosio, T., Menaa, N., Bertreix, P., Rimlinger, M., Theis, C.
  2020; 156: 108953

- **Computation of Radioactive Material Transport Limits Within A1/A2 Working Group at IAEA TRANSSC** *IEEE ACCESS*
  Frosio, T., Bertreix, P., Theis, C., Donjoux, Y., Cabianca, T., Brown, I., Foster, M., Endres, J., Eberhardt, H., Hayakawa, N., Louis, B., Thomas, S., Bez, et al
  2020; 8: 29040-29054

- **A new gamma spectroscopy methodology based on probabilistic uncertainty estimation and conservative approach** *APPLIED RADIATION AND ISOTOPES*
  Frosio, T., Menaa, N., Duchemin, C., Riggaz, N., Theis, C.
  2020; 155: 108929

- **Spectrum and Yield to Dose Conversion Coefficients for Beta Skin Doses Linked to the Q System** *HEALTH PHYSICS*
  Frosio, T., Bertreix, P., Koster, U., Theis, C., Magistris, M.
  2019; 116 (5): 607-618

- **Extension of Bayesian inference for multi-experimental and coupled problem in neutronics - a revisit of the theoretical approach** *EPJ NUCLEAR SCIENCES & TECHNOLOGIES*
  Frosio, T., Bonaccorsi, T., Blaise, P.
  2018; 4

- **Impact of correlations between core configurations for the evaluation of nuclear data uncertainty propagation for reactivity** *EPJ NUCLEAR SCIENCES & TECHNOLOGIES*
  Frosio, T., Blaise, P., Bonaccorsi, T.
  2017; 3

- **Manufacturing Data Uncertainties Propagation Method in Burn-Up Problems** *SCIENCE AND TECHNOLOGY OF NUCLEAR INSTALLATIONS*
  Frosio, T., Bonaccorsi, T., Blaise, P.
  2017; 2017

- **Fission yields and cross section uncertainty propagation in Boltzmann/Bateman coupled problems: Global and local parameters analysis with a focus on MTR** *ANNALS OF NUCLEAR ENERGY*
  Frosio, T., Bonaccorsi, T., Blaise, P.
  2016; 98: 43-60

- **Nuclear data uncertainties propagation methods in Boltzmann/Bateman coupled problems: Application to reactivity in MTR** *ANNALS OF NUCLEAR ENERGY*
  Frosio, T., Bonaccorsi, T., Blaise, P.
  2016; 90: 303-317

- **Simulation of the core flowering End-of-life test realized on PHENIX reactor**
  Prulhiere, G., Fontaine, B., Frosio, T.
  edited by Caruge, D., Calvin, C., Diop, C. M., Malvagi, F., Trama, J. C.
  E D P SCIENCES.2014