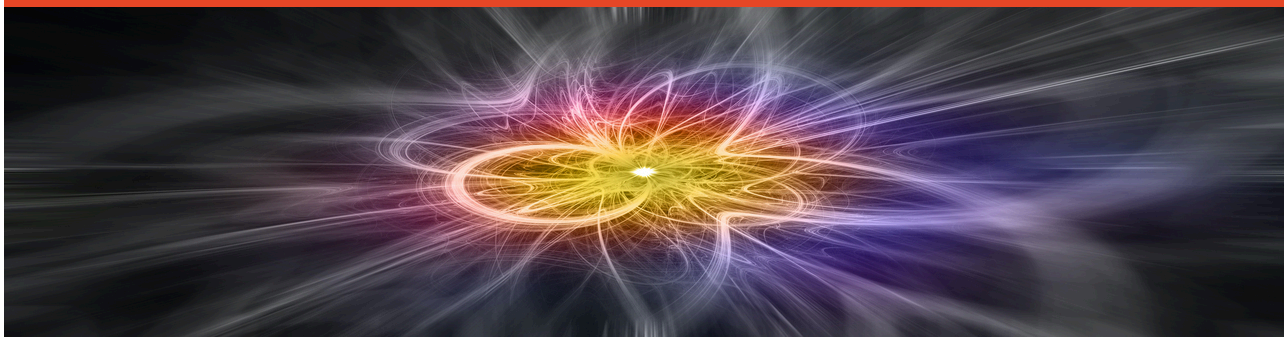
Faculty of Science
Institute of Medical Physics

THE UNIVERSITY OF SYDNEY



IMP Journal Club - 20 October 2026 at 12:30 pm

Presenter: Dr Harry Marquis

Title: Developing MIRD-endorsed, open-source software for quantification and dosimetry in theranostics

Subtitle: From USYD MMedPhys to Stanford faculty: a journey through research and residency at Memorial Sloan Kettering Cancer Center

Abstract: How can medical physics research become a practical resource for the wider community? This presentation will explore the development of MIRDsoft, a collaborative initiative supporting freely available, open-source tools for image quantification and radiation dosimetry. Drawing on examples including MIRDy90 and MIRDpvc, I will discuss translating methods for treatment planning and partial volume correction into transparent, accessible software, supported by MIRD committee endorsed publications. Alongside this work, I will share my journey from the University of Sydney's medical physics master's program and PhD training to postdoctoral research and clinical residency at Memorial Sloan Kettering Cancer Center, and my upcoming faculty position at Stanford University. The talk will connect research, software development and clinical practice, offering students a perspective on the opportunities within nuclear medicine physics, and academic medical physics as a whole.

Bio: Harry Marquis, PhD, DABSNM, is a board-certified nuclear medicine physicist and Chief Imaging Physics Resident at Memorial Sloan Kettering Cancer Center in New York. He

completed his master's degree in medical physics and PhD in nuclear medicine physics at the University of Sydney, undertaking his doctoral research under Professor Dale Bailey before moving to New York City for postdoctoral research and clinical residency in the hybrid 2+2 program. His research interests include quantitative PET and SPECT imaging, partial volume correction, and radiopharmaceutical therapy dosimetry. At Memorial Sloan Kettering, Harry has developed MIRDsoft software including MIRDy90 and MIRDpvc, with this work published in three first-author MIRD pamphlets (Nos. 29, 32 and 33) in the Journal of Nuclear Medicine. He is a recipient of the SNMMI Arthur M. Weis Prize and three Alavi-Mandell Awards, and was named one of the SNMMI "Ones to Watch" in 2026. Harry has accepted a faculty position as Clinical Assistant Professor in Stanford University's Department of Radiology, within the Division of Nuclear Medicine and Molecular Imaging, commencing in December 2026. As the division's clinical nuclear medicine physicist, he will support image quantification, scanner qualification and radiopharmaceutical therapy dosimetry, with his time divided between clinical responsibilities, teaching and research.

Please join us via Zoom (Meeting ID: 85792756952)

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