

Program for Direct Measurements of Neutron Reactions on Radionuclides - DIMER

Hilton Santa Fe Historic Plaza, NM

December 16th, Monday 2024

Time	Duration	Speaker	Title
12:30 – 13:00	30 min		Registration
Session 1: Introduction to DIMER (13:00– 15:00) Chair: Rene Reifarth			
13:00 – 13:10	10 min	Hye Young Lee (LANL)	Overview of the DIMER meeting structure
13:10 - 13:40	30 min	Shea Mosby (LANL)	Overview of needs and capabilities for radionuclide reaction physics
13:40 – 14:10	30 min	Andrew Ratkiewicz (Lawrence Livermore National Laboratory)	Constraining Neutron-Induced Reactions on Unstable Nuclei
14:10 – 14:40	30 min	Michael Wiescher (University of Notre Dame)	Neutron poisons and neutron storage in stellar environment
14:40 - 15:00	20 min		Break
Session 2: LANSCE Futures (15:00 – 17:50) Chair: Shea Mosby			
15:00- 15:30	30 min	Greg Dale (LANL)	LANSCE Modernization Project overview
15:30 – 16:00	30 min	Rene Reifarth (LANL)	A Neutron Target for Measurements in Inverse Kinematics
16:00 - 16:20	20 min	Andrew Cooper (LANL)	Reaching for the stars: Next-generation neutron reaction experiments with the Neutron Target Demonstrator and the ASTRA Facility at LANSCE
16:20 – 17:20	60 min	Discussion leads: -Rene Reifarth -Hye Young Lee -Thanos Stamatopoulos	Extended discussion - DIMER goals - LANSCE Futures

December 17th, Tuesday 2024

Time	Duration	Speaker	Title
Session 3: Neutron scattering and (n,2n) reactions I (9:00 – 10:30) Chair: Toshihiko Kawano			
9:00 - 9:30	30 min	Keegan Kelly (LANL)	The CoGNAC Neutron Scattering, (n,2n), and (n,3n) Measurement Capabilities at Los Alamos National Laboratory
9:30 – 10:00	30 min	John Despotopoulos (Lawrence Livermore National Laboratory)	Development of Platforms at NIF to measure (n,2n) Cross Sections
10:00 – 10:30	30 min	Mike Febbraro (Air Force Institute of Technology)	Intense short pulse (n,x) reaction studies on stable and radionuclei using ATHENA at NIF
10:30 – 10:50	20 min		Break
Session 4: Neutron scattering and (n,2n) reactions II (10:50 – 12:10) Chair: Amy Lee			
10:50 - 11:20	30 min	Gencho Rusev (LANL)	Neutron-induced measurements at TUNL's tandem lab
11:20 - 11:40	20 min	Ronnie Rera (Air Force Institute of Technology)	Measurements of the Radio-production Cross Section of $^{193}\text{Ir}(n,n')^{193\text{m}}\text{Ir}$ between 0.5 and 9 MeV
11:40 – 12 :10	30 min		Discussion on neutron scattering and (n,2n) reactions in future facilities
12:10 – 13:50	100 min		Lunch break
Session 5: Neutron capture reactions I (13:50 - 15:20) Chair: Todd Bredeweg			
13:50 - 14:20	30 min	Falk Herwig (U. of Vitoria)	Numerical simulations of dynamic i-process nucleosynthesis in stars constrained by nuclear physics experiments and astrophysical observations
14:20 – 14:50	30 min	Aaron Couture (LANL)	The Limits of Direct Measurement of Neutron Capture on Radionuclides
14:50 - 15:20	30 min	Katharina Domnanich (FRIB, MSU)	Overview of Isotope Harvesting Efforts at FRIB
15:20 – 15:40	20 min		Break
Session 6: Neutron capture reactions II (15:40 - 17:00) Chair: Aaron Couture			
15:40 - 16:10	30 min	Cesar Domingo Pardo (Instituto de Física Corpuscular)	Radiative neutron-capture experiments with radioactive isotopes at CERN n_TOF
16:10 - 16:30	20 min	Ingrid Knapova (LANL)	Challenges of the neutron-capture measurement on radioactive ^{204}Tl with the DANCE detector
16:30 – 17 :00	30 min		Discussion on neutron capture reactions on radionuclides

December 18th, Wednesday 2024

Time	Duration	Speaker	Title
Session 7: Reaction studies on radionuclides I (9:00 – 10:00) Chair: Hye Young Lee			
9:00 – 9:30	30 min	Caterina Michelagnoli (Institut Laue-Langevin)	Probing nuclear structure with thermal neutrons
9:30 – 10:00	30 min	J. A. Cizewski (U. Rutgers)	Informing neutron capture with surrogate (d,p) reactions
10:00 – 10:20	20 min		Break
Session 8: Reaction studies on radionuclides II (10:20 – 11:50) Chair: Sean Kuvin			
10:20 – 10:50	30 min	Alberto Mengoni (CERN)	Status and Perspectives of the neutron-induced nuclear reaction studies at the n_TOF facility at CERN
10:50 - 11:20	30min	Hye Young Lee (LANL)	Neutron induced charged particle emitting reactions on radioactive isotopes at LANSCE
11:20 – 11:40	20 min		Discussion on reaction studies using the neutron target
11:40 – 13:20	100 min		Lunch break
Session 9: Fission studies (13:20– 15:10) Chair: Christopher Prokop			
13:20 – 13:50	30 min	Ionel Stetcu (LANL)	Microscopic approach to nuclear reactions
13:50 – 14:20	30 min	Jack Winkelbauer (LANL)	Fission Fragment measurements
14:20 – 14:40	20 min	Kazuki Fujio (LANL)	Unresolved resonance region cross sections by Random-Matrix approach
14:40 – 15:00	20 min		Discussion on fission studies at future facilities
15:00 – 15:20	20 min		Break
Session 10: Advanced technologies (15:20 – 17:00) Chair: Thanos Stamatopoulos			
15:20 – 15:50	30 min	Heinrich Wilsenach (Justus-Liebig-Universitat Gießen)	NG-Trap: Trap System for Measuring Neutron Capture Cross Section of Short-lived Neutron Rich Isotopes
15:50 – 16:10	20 min	Marko Imbrisak (LANL)	The (weighted) Levenberg-Marquardt algorithm for curve-fitting problem physics
16:10 – 16:40	30 min		Discussion on advanced technologies for reaction studies with radionuclides
16:40 – 17:00	20 min	All	White Paper discussion I

December 19th, Thursday 2024

Time	Duration	Speaker	Title
Session 11: Reaction studies on radionuclides III (9:00 – 10 :30) Chair: Etienne Vermeulen			
9:00 – 9:30	30 min	Veronika Mocko (LANL)	Preparation of highly radioactive targets for nuclear data measurements
9:30 - 10:00	30 min	Thanos Stamatopoulos (LANL)	Indirect capture studies with DICER
10:00 – 10:20	20 min	Will Flanagan (Univ of Dallas)	Direct Neutron Capture Measurement of Zirconium-88 at CERN n_TOF
10:20 – 10:40	20 min		Discussion on radioactive target productions for future facilities
10:40 – 11:00	20 min		Break
Session 12: Summary and White Paper Discussion II (10:50 – 12:00) Chair: Hye Young Lee			
11:00 - 12:00	60 min	All	Combined effort to 1. Address current limitations, 2. Brainstorm future directions, and 3. Suggest community recommendations