

ECT* Workshop

Nuclear Physics and Astrophysics of Neutron-Star Mergers and Supernovae, and the Origin of R-Process Elements

(8-12 September 2014)

Day 1 [Monday, 8 September]

9:30 – 10:50

James Lawler

Elemental Abundances in Metal Poor Stars

Camilla Hansen

Stellar observations indicate two primary processes

10:50 – 11:20: Break

11:20 – 12:40

Kei Kotake

Multimessenger observables from multi-D core-collapse supernova simulations

Kosuke Sumiyoshi

Multi-D neutrino transfer in core-collapse supernovae and its implications

12:40 – 14:10: Lunch

14:10 – 15:30

Baha Balantekin

Neutrinos and nucleosynthesis

Taka Kajino

R-PROCESS IN NEUTRON-STAR MERGERS AND SUPERNOVAE:

Difference in Nuclear Physics and Implication in Galactic Chemical Evolution

15:30 – 16:00: Break

16:00 – 17:20

Shigehiro Nagataki

R-Process Nucleosynthesis in Astrophysical Big Bang

Nobuya Nishimura

A new mechanism ejecting neutron-rich matter from core-collapse supernovae induced by magneto-rotational instability

Reception

Day 2 [Tuesday, 9 September]

9:30 – 10:50

Rebecca Surman

Kenta Hotokezaka

Mass ejection from binary neutron star mergers

10:50 – 11:20: Break

11:20 – 12:40

Shinya Wanajo

The r-process in neutron star mergers

Oleg Korobkin

Astrophysical robustness of the r-process nucleosynthesis

12:40 – 14:10: Lunch

14:10 – 15:30

Masaomi Tanaka

Electromagnetic emission from neutron star mergers

Samaya Nissanke

Searching for electromagnetic counterparts of neutron star binary mergers

15:30 – 16:30: Break

16:30 Colloquium

Roland Diehl

Lessons from cosmic gamma-ray observations

Day 3 [Wednesday, 10 September]

9:30 – 10:50

Tomoya Takiwaki

Three dimensional simulation of core-collapse supernovae

Grant Mathews

Supernovae, gamma-ray bursts, and the r-process

10:50 – 11:20: Break

11:20 – 12:40

Benjamin Wehmeyer

Giuseppe Lorusso

Survey of beta-decay half-life of neutron-rich nuclei at RIBF

12:40: Lunch

Open discussion in the afternoon

Day 4 [Thursday, 11 September]

9:30 – 10:50

Marius Eichler

The Role of Fission in Neutron Star Mergers and the Position of the Third r-Process Peak

Yuhri Ishimaru

Chemical evolution of r-process elements

10:50 – 11:20: Break

10:20 – 12:40

Takehito Hayakawa

Supernova neutrino process and neutrino-nucleus interactions

Jochen Wambach

12:40 – 14:10: Lunch

14:10 – 15:30

Cheoun Myung-Ki

Beta decay and Gamow-Teller transition of neutron-rich nuclei by Deformed QRPA

Toshio Suzuki

Nuclear structure and nucleosynthesis

15:30 – 16:00: Break

16:00 – 17:20

Olivier Sorlin

An experimental study of the spin-orbit force with a bubble nucleus:
connection to the r-process nucleosynthesis.

Jouni Suhonen

Nuclear-structure studies of neutrino-nucleus processes at supernova energies

Social dinner

Day 5 [Friday, 12 September]

9:30 – 10:50

Yamac Pehlivan Deliduman

Adiabatic evolution of neutrinos in supernova and nucleosynthesis"

Livius Trache

Nuclear astrophysics with exotic beams

10:50 – 11:20: Break

11:20 – 12:40

Nils Paar

Weak interaction processes in the framework of relativistic
nuclear energy density functional

Summary