

Theories of Astrophysical Big Bangs 2025

Monday 17 February 2025 - Wednesday 19 February 2025

RIKEN Wako

Scientific Programme

Program (last updated 2025.02.20)

Presentation slide files are uploaded here

17Feb.

10:00-10:10 Opening Remarks by Hiro Nagataki (RIKEN)

Special Talk

10:10-11:10 (50+10) Daniel Kasen (U.C. Berkeley)

Radiative Transfer Modeling of Explosive Transients

NS mergers, Kilonovae, and Gravitational Waves

11:10-11:50 (30+10) Masaomi Tanaka (Tohoku U.)

Decoding light curves and spectra of kilonovae

11:50-12:30 (30+10) Kenta Hotokezaka (U. Tokyo)

Kilonova Nebular Emission

12:30-14:00 Lunch Break and Poster Session

14:00-14:40 (30+10) Kipp Cannon (U. Tokyo)

Selection Effects in Gravitational-Wave Observations

14:40-15:20 (30+10) Koutarou Kyutoku (Chiba U.)

Signature of hadron-quark crossover in binary-neutron-star mergers

15:20-15:50 Poster Presentations & Coffee Break

15:50-16:30 (30+10) Luca Baiotti (Osaka U.)

Investigating ultra-high-density equations of state through gravitational waves from binary neutron stars mergers

Supernovae & Gamma-Ray Bursts (Chair A. Mizuta)

16:30-17:10 (30+10) Nozomu Tominaga (NAOJ)

Transient studies using Subaru/Hyper Suprime-Cam

17:10-17:50 (30+10) Tianshu Wang (UCB)

Three-Dimensional Long-Term CCSN Simulations: New Insights and Challenges

18 Feb.

Gamma-Ray Bursts

9:00-9:30 (25+5) Akira Mizuta (RIKEN)

3D relativistic GRB jet propagation in collapsars

9:30-10:00 (25+5) Jin Matsumoto (Fukuoka U.)

Nonlinear dynamics of relativistic magnetized jet with field reversals

10:00-10:30 (25+5) Hirotaka Ito (RIKEN)

Numerical simulations of photospheric emission in GRBs

10:30-11:00 (25+5) Maria Dainotti (NAOJ)

GRBs and SNe Ia cosmology to cast the Hubble constant tension

11:00-11:30 Poster Presentations & Coffee Break

11:30-12:10 (30+10) Kunihito Ioka (Kyoto U.)
GRB Cocoon + Scattering in FRB

Neutron Stars

12:10-12:40 (25+5) Hajime Sotani (Kochi U.)
Supernova gravitational waves and asteroseismology

12:40-14:00 Lunch Break & Poster Presentations

14:00-14:30 (25+5) Akira Dohi (RIKEN)
Modeling of Clocked X-ray Bursters

Progenitor Stars

14:30-15:10 (30+10) Hideyuki Umeda (U. Tokyo)
Progenitors of low-mass Fe core collapse supernovae and properties of supernova explosions
15:10-15:40 (25+5) Lucy McNeill (Kyoto U.)
Finite temperature treatment of white dwarf merger progenitors

15:40-16:10 Poster Presentations & Coffee Break

Core-Collapse Supernovae

16:10-16:50 (30+10) Tomoya Takiwaki (NAOJ)
Diversity of explosion mechanisms of core-collapse supernovae
16:50-17:30 (30+10) Hiroki Nagakura (NAOJ)
Open issues in numerical modeling of core-collapse supernova
17:30-18:10 (30+10) Yudai Suwa (U. Tokyo)
Probing supernova interiors with neutrinos

18:30-21:00 Banquet & Poster Presentations

19 Feb.

Supernovae, Supernova Remnants, and Nucleosynthesis

10:00-10:40 (30+10) Ke-Jung Chen (ASIAA)

Supernovae of very massive stars

10:40-11:20 (30+10) Masaomi Ono (ASIAA)

Evolution of core-collapse supernovae from explosion to supernova remnant

11:20-12:00 (30+10) Hiroya Yamaguchi (JAXA)

XRISM view of supernova remnants

12:00-12:40 (30+10) Shiu-Hang Lee (Kyoto U.)

Super high-speed three-dimensional hydrodynamic simulations of supernova remnants and their applications in the era of microcalorimetric X-ray spectroscopy

12:40-14:00 Lunch Break

14:00-14:40 (30+10) Gilles Ferrand (U. Manitoba)

Typing thermonuclear explosions from observations of young supernova remnants

14:40-15:20 (30+10) Nobuya Nishimura (U. Tokyo)

Toward new nuclear astrophysics experiments for explosive nucleosynthesis in core-collapse supernovae

15:20-16:00 (30+10) Ryosuke Hirai (RIKEN)

Supernovae in binary systems

16:00-17:00 (60) Coffee Break and Free Discussion