

# Collaborative Meeting on Supernova Remnants between Japan and USA

Program: 7 – 12 November 2019

1st week (7-8 Nov., Place: Wako Campus, RIKEN)

## 7 Nov. (Okochi Hall)

9:00 - 9:30 Registration

9:30 - 10:00 Shigehiro Nagataki (RIKEN) "Opening address"

10:00 - 10:40 John Raymond (SAO) "Understanding SNRs and Galaxies"

-- Coffee Break --

11:00 - 11:40 Daniel J. Patnaude (SAO) "Explosion and Circumstellar Asymmetries Revealed in the Cas A Supernova Remnant"

11:40 - 12:20 Daniel Castro (CfA) "The expansion and width of the synchrotron filaments associated with the forward shock of Cas A"

Lunch

14:00 - 14:40 Satoru Katsuda (Saitama Univ.) "Intermediate-mass Elements in Young Supernova Remnants Reveal Neutron Star Kicks by Asymmetric Explosions"

14:40 - 15:20 Toshiki Sato (RIKEN) "Genus Statistic Applied to the X-Ray Remnant of SN 1572: Clues to the Clumpy Ejecta Structure of Type Ia Supernovae"

-- Coffee Break --

15:40 - 16:20 Takaya Nozawa (NAOJ) "Dust destruction in SNRs"

16:20 - 16:50 Masaomi Ono (RIKEN) "Three-dimensional simulations of SN 1987A: nucleosynthesis, X-ray emission, and molecule formation"

Break

17:10 - 17:40 Naomi Tsuji (Rikkyo Univ.) "Nonthermal X-ray and Gamma-ray Diagnostics of Diffusion Coefficient Near Supernova Remnant Shock"

17:40 - 18:00 Yuki Takei (RESCEU, Univ. of Tokyo/RIKEN) "Constructing a Model for Interaction-Powered Supernovae"

18:30 - 20:30 Discussion with Dinner

8 Nov. (Room 224-226 at Main Research Building)

9:30 - 10:10 Danny Milisavljevic (Purdue Univ.) "Probing Progenitors and Explosion Mechanisms of Core-collapse Supernovae With Late-time Observations"

10:10 - 10:50 Taylor Jacovich (CfA) "A Grid of Core Collapse Supernova Remnant Models Evolved from Massive Progenitors"

-- Coffee Break --

11:10 - 11:50 Hideyuki Umeda (Univ. of Tokyo) "Current status of understanding of the massive star evolution"

11:50 - 12:30 Takashi Yoshida (Univ. of Tokyo) "Multi-dimensional Simulations of Oxygen-Shell Burning Just before the Core Collapse of Massive Stars"

Lunch

14:00 - 14:40 Ke-Jeng (Ken) Chen (ASIAA, Taiwan) "The Pop III SNRs and the formation of the first galaxies"

14:40 - 15:20 Toshikazu Shigeyama (Univ. of Tokyo) "Type II supernovae and the eruptive mass ejection at very late phases of massive star evolution"

-- Coffee Break --

15:40 - 16:10 Akira Dohi (Kyushu Univ.) "Possible rapid cooling process of neutron star with realistic equation of state"

16:10 - 16:40 Hajime Sotani (NAOJ) "Constraints on the nuclear equation of state and the neutron star structure from crustal torsional oscillations"

Break

17:00 - 17:30 Hiroyoshi Iwasaki (Rikkyo Univ.) "X-ray study of spatial structures in Tycho's supernova remnant using unsupervised deep learning"

17:30 - 18:00 Gilles Ferrand (RIKEN) "From Supernova to Supernova Remnant: The Three-dimensional Imprint of Type Ia Supernovae"

2nd week (11-12 Nov., Place: North Campus, Kyoto University)

11 Nov. (#204-205, Masukawa Building for Education and Research)

9:30 - 10:10 Patrick O. Slane (CfA) "X-ray Polarization in Supernova Remnants"

10:10 - 10:50 Carles Badenes (Univ. of Pittsburgh) "Chandrasekhar and Sub-Chandrasekhar Models for the X-Ray Emission of Type Ia Supernova Remnants"

-- Coffee Break --

11:10 - 11:50 Hiroya Yamaguchi (ISAS/JAXA) "The 10th anniversary of the discovery of recombining plasma in mixed-morphology supernova remnants"

11:50 - 12:20 Kathryn E. Weil (CfA) "The Cygnus Loop's Distance, Properties & Environment Driven Morphology"

Lunch

14:00 - 14:40 Nobuya Nishimura (Kyoto Univ.) "Revisiting magneto-rotational supernovae: the possible observational properties of r-process-jets"

14:40 - 15:10 Keiichi Maeda (Kyoto Univ.) "Evolution of Magnetized White Dwarf Binaries to Type Ia Supernovae"

-- Coffee Break --

15:30 - 16:00 Niharika Sravan (Purdue Univ.) "Stripped-Envelope Supernova Progenitors"

16:00 - 16:30 Takaaki Tanaka (Kyoto Univ.) "NuSTAR Detection of Nonthermal Bremsstrahlung from the Supernova Remnant W49B"

Break

16:50 - 17:10 Ryo Sawada (Kyoto Univ.) "Nucleosynthesis constraints on the energy growth timescale of a core-collapse SN explosion"

17:10 - 17:30 Tomoki Matsuoka (Kyoto Univ.) "Radio Emission from Supernovae in the Very Early Phase: Implications for the Dynamical Mass Loss of Massive Stars"

17:30 - 17:50 Ryoma Ouchi (Kyoto Univ.) "Constraining Massive Star Activities in the Final Years through Properties of Supernovae and Their Progenitors"

12 Nov. (#204-205, Masukawa Building for Education and Research)

9:30 - 10:10 Paul P. Plucinsky (CfA) "Chandra Observations of the Magellanic Cloud Supernova Remnants 1E 0102.2-7219 and N132D"

10:10 - 10:50 Hidetoshi Sano (Nagoya Univ.) "Shock-cloud interactions in young gamma-ray supernova remnants: Evidence for cosmic-ray acceleration"

-- Coffee Break --

11:10 - 11:40 Herman Lee (Kyoto Univ.) "Cradle-to-grave models for core-collapse supernova remnants and machine learning"

11:40 - 12:00 Ryosuke Kobashi (Kyoto Univ.) "Towards a unified model of non-thermal radiations from young to middle-aged SNRs with CR-hydro code"

Lunch

14:00 - 14:30 Hiroyuki Uchida (Kyoto Univ.) "High Forbidden-to-resonance Line Ratio of O VII Discovered from the Cygnus Loop"

14:30 - 14:50 Tomoyasu Hayakawa (Kyoto Univ.) "Expected X-ray emissions from a failed supernova and fallback heating effect"

-- Coffee Break --

15:10 - 16:10 Discussion

16:10 - 16:20 Concluding remark

[This meeting is a part of the RIKEN Symposium Series.]