

# The 16th Workshop on General Relativity and Gravitation

Niigata Prefectural Civic Center, Niigata, Japan

Invited talk	40 min + 10 min discussion
Long oral presentation	25 min + 5 min discussion
Oral presentation	15 min + 5 min discussion
Short oral presentation of poster	3 min

## Oral presentation

### 27 Nov (Mon)

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**14:00–15:40** Chair: Misao Sasaki (YITP)

14:00–14:50

Eanna Flanagan (Cornell Univ.) [A01]

Theoretical explanations for the accelerating Universe

14:50–15:40

J. Richard Bond (CITA) [A02]

Constraining Inflation Histories with the CMB and Large Scale Structure

### 15:40–16:10 Break

**16:10–17:30** Chair: Hideki Ishihara (Osaka City Univ.)

Masumi Kasai (Hirosaki Univ.) [C01]

Post-Friedmannian effects of inhomogeneities in observational cosmology

Tomohiro Kai (Osaka City Univ.) [C02]

Can inhomogeneities accelerate the cosmic volume expansion ?

Shinji Mukohyama (Univ. of Tokyo) [C03]

Higgs phase of gravity

Tom Auld and Michael Bridges (Univ. of Cambridge) [C04]

Accelerated Cosmological Parameter Estimation

### 17:30–18:12

Short oral presentation of poster [P01–P14]

### 28 Nov (Tue)

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**9:15–10:55** Chair: Kei-ichi Maeda (Waseda Univ.)

9:15–10:05

Paolo Creminelli (ICTP) [A03]

Starting the Universe: Stable Violation of the Null Energy Condition and Non-standard Cosmologies

10:05–10:55

Norio Tamura (Niigata Univ.) [A04]

Current Status of Neutrino Oscillations

### 10:55–11:20 Break

**11:20–12:20** Chair: Jiro Soda (Kyoto Univ.)

Kazuhide Ichikawa (ICRR, Univ. of Tokyo) [C05]

Neutrino mass constraints from WMAP and SDSS

Bo Feng (RESCEU) [C06]

Spontaneous Baryogenesis, CPT violations and the observational imprints

Masahide Yamaguchi (Aoyama Gakuin Univ.) [C07]

Time variation of fundamental constants with runaway dilaton

### 12:20–12:56

Short oral presentation of poster [Q01–Q12]

### 12:56–13:50 Lunch

**13:50–15:50** Chair: Takahiro Tanaka (Kyoto Univ.)

13:50–14:40

Valery Rubakov (Russian Academy of Science) [A05]

Brane world as theoretical laboratory

14:40–15:50

Ken Matsuno (Osaka City Univ.) [C08]

Masses of Kaluza-Klein Black Holes

Masashi Kimura (Osaka City Univ.) [C09]

Kaluza-Klein Multi-Black Holes

Shinya Tomizawa (Osaka City Univ.) [30min] [B01]

Coalescing Black Holes on Eguchi Hanson Space

### 15:50–16:50 Break and Poster

**16:50–18:10** Chair: Shinji Mukohyama (Univ. of Tokyo)

Tatsuhiko Koike (Keio Univ.) [C10]

Homogeneous and cohomogeneity-one objects in five-dimensional anti-de-Sitter spacetime

Yuko Urakawa (Waseda Univ.) [C11]

Higher order quantum correction to the cosmological perturbations

Kouji Nakamura (SOKENDAI/NOAJ) [C12]

Second order gauge invariant cosmological perturbation theory:  
— Einstein equations in terms of gauge invariant variables —

Yoshiharu Tanaka (YITP) [C13]

Non-linear cosmological perturbations on large scales

## 29 Nov (Wed)

**9:15–10:55** Chair: Ken-ichi Oohara (Niigata Univ.)

9:15–10:05

Chris Fryer (LANL/Univ. of Arizona) [A06]  
The Mechanisms behind Supernovae and Long-Duration Gamma-Ray Bursts

10:05–10:55

Nobuyuki Kawai (TITech) [A07]  
Current Topics on the Gamma-Ray Burst Observations

**10:55–11:20 Break**

**11:20–13:10** Chair: Kunihito Ioka (Kyoto Univ.)

Kenji Toma (Kyoto Univ.) [30min] [B02]  
Low-luminosity GRB 060218: A Collapsar Jet from a Neutron Star?

Kentaro Takami (Hiroshima Univ.) [C14]  
Probing the Jet Structure of Gamma-Ray Bursts with Steep Decay Phase of their Early X-ray Afterglows

Ken'ichiro Nakazato (Waseda Univ.) [C15]  
Neutrino Emission from Stellar Core Collapse and Black Hole Formation

Motoyuki Saijo (Univ. of Southampton) [C16]  
Secular bar mode instability in rotating relativistic stars

Eiji Mitsuda (Nagoya Univ.) [C17]  
Self-similar homogeneous collapse of a perfect fluid and new critical phenomena

**13:10–14:00 Lunch**

**14:00–15:50** Chair: Ken-ichi Nakao (Osaka City Univ.)

Hideaki Kudoh (UCSB) [30min] [B03]  
Doubly Spinning Black Rings and Beyond

Takashi Mishima (Nihon Univ.) [C18]  
Superposition of five-dimensional black rings and black holes

Keiju Murata (Kyoto Univ.) [C19]  
(2+1)-dimensional black string

Norihiro Tanahashi (Kyoto Univ.) [C20]  
Time-symmetric initial data of brane-localized black hole in RS-II model

Nobuyuki Sakai (Yamagata Univ.) [C21]  
Gravitating Q-balls

**15:50–16:50 Break and Poster**

**16:50–18:10** Chair: Tetsuya Shiromizu (TITech)

Stefano Ansoldi (Univ. of Trieste) [C22]  
Bubbles and Quantum Tunnelling in Inflationary Cosmology

Kazuharu Bamba (YITP) [C23]  
Large-scale magnetic fields from inflation

Hidenori Nomura (Hiroshima Univ.) [C24]  
Classical and quantum radiation from a moving charge in the expanding universe

Hideki Maeda (Waseda Univ.) [C25]  
Matter without matter: pure gravitational creation

## 30 Nov (Thu)

**9:15–10:55** Chair: Hideo Kodama (YITP)

9:15–10:05

Shoichi Yamada (Waseda Univ.) [A08]  
Recent Issues in Core-collapse Supernovae

10:05–10:55

Ryoichi Nishi (Niigata Univ.) [A09]  
Formation process of first generation luminous objects and their observational possibility

**10:55–11:20 Break**

**11:20–12:50** Chair: Hideki Asada (Hirosaki Univ.)

Yudai Suwa (Univ. of Tokyo) [C26]  
Gravitational Wave Background from Population III Stars

Tatsunori Imai (Hirosaki Univ.) [30min] [B04]  
Periodic gravitational waves from a 3-body system

Wataru Hikida (Osaka Univ.) [C27]  
An efficient method for the computation of gravitational wave snapshots of generic extreme mass ratio inspirals

Atsushi Nishizawa (Kyoto Univ.) [C28]  
Displacement noise-free gravitational-wave detection

**12:50–13:50 Lunch**

**13:50–15:40** Chair: Yasufumi Kojima (Hiroshima Univ.)

13:50–14:40

Richard Manchester (Australia Telescope National Facility, CSIRO) [A10]  
Pulsars as Gravitational Probes

14:40–15:40

Ryuichi Fujita (Osaka Univ.) [C29]  
Gravitational waves from a particle in bound geodesic orbits around a Kerr black hole

Kunihito Ioka (Kyoto Univ.) [C30]  
Second-Order Quasi-Normal Mode of the Schwarzschild Black Hole

Satoshi Okuzumi (Kyoto Univ.) [C31]  
Quasinormal ringing of acoustic black holes

**15:40–16:40 Break and Poster**

**16:40–17:40** Chair: Takeshi Chiba (Nihon Univ.)

Tomohiro Harada (Rikkyo Univ.) [C32]  
Non-existence of self-similar black hole in a universe with a scalar field or quintessence

Daisuke Ida (Gakushuin Univ.) [C33]  
Topology Change of Black Holes

Hiromi Saida (Daido Institute of Technology) [C34]  
Non-equilibrium Phenomena in Black Hole Evaporation

**19:00– Party at Niigata Toei Hotel**

## 01 Dec (Fri)

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**9:15–10:55** Chair: Yasusada Nambu (Nagoya Univ.)

Jiro Soda (Kyoto Univ.) [C35]

Impact of Lorentz Violation on Cosmology

Shunichiro Kinoshita (Univ. of Tokyo) [C36]

Stability of a de Sitter brane in a six-dimensional braneworld

Shuntaro Mizuno (RESCEU) [C37]

Inflaton perturbations in brane-world cosmology with induced gravity

Tsutomu Kobayashi (TITech) [C38]

Scalar cosmological perturbations in the Gauss-Bonnet braneworld

Yuichi Takamizu (Waseda Univ.) [C39]

Fermions on Colliding Branes

**10:55–11:25 Break**

**11:25–12:45** Chair: Kazuya Watanabe (Niigata Univ.)

Masaru Siino (TITech) [C40]

Algebraic Quantum Gravity

Osamu Seto (Univ. of Sussex) [C41]

Time dependent solutions in six dimensional supergravity

Yukinori Sasagawa (Waseda Univ.) [C42]

Black Hole Solutions in Supergravity with String Corrections

Makoto Narita (National Taiwan Univ.) [C43]

Global properties of some homogeneous spacetimes in the Einstein-Yang-Mills-dilaton system

## Poster presentation

(P01) Kiyotomo Ichiki (RESCEU)

Cosmological Constraints on Generalized Dark Energy Models

(P02) Shuichiro Yokoyama (Kyoto Univ.)

Analysis of the evolution of curvature perturbations in preheating by using  $\delta N$  formalism

(P03) Ryuichi Takahashi (NAOJ)

Weak lensing of galaxy clusters in relativistic MOND theory

(P04) Chul-Moon Yoo (Osaka City Univ.)

Gravitational lensing effects on Type Ia supernovae

(P05) Kenta Kiuchi (Waseda Univ.)

Chaotic motion of Spinning particle in Black hole space time

(P06) Hiroko Koyama (Waseda Univ.)

1/f fluctuations in spinning-particle motions near a Schwarzschild black hole

(P07) Takamasa Chiba (Hiroasaki Univ.)

3-body problem in GR

(P08) Hiroyuki Nakano (Univ. of Texas at Brownsville)

Regular 2nd order perturbations of extreme mass ratio binaries

(P09) Ken-ichi Nakao (Osaka City Univ.)

Relativistic Gravitational Collapse of Cylindrical Dust

(P10) Masaaki Takahashi (Aichi Univ. of Education)

“Black Hole Aurora” in a Black Hole Magnetosphere

(P11) Shijun Yoshida (Waseda Univ.)

Equilibrium configurations of magnetized rotating polytropes

(P12) Kohei Onda (Nagoya Univ.)

Energy transport by MHD waves in force-free black hole magnetospheres

(P13) Yasufumi Kojima (Hiroshima Univ.)

Numerical Construction of Pulsar Magnetosphere Models

(P14) Takashi Torii (Osaka Institute of Technology)

Violation of third law of black hole thermodynamics

(Q01) Kouji Ogawa (Osaka City Univ.)

Adiabatic Evolutions of Stationary Rotating Cosmic Strings

(Q02) Atushi Taruya (Univ. of Tokyo)

Polarization analysis of gravitational-wave backgrounds

(Q03) Hisaaki Shinkai (Osaka Institute of Technology)

Constraint Propagation revisited

(Q04) Umpei Miyamoto (Waseda Univ.)

Inhomogeneous charged black branes: a novel stable phase

(Q05) Keisuke Izumi (Kyoto Univ.)

About the ghost in the DGP braneworld model

(Q06) Hiroshi Kozaki (Osaka City Univ.)

Bianchi type I brane in the 5-dim AdS spacetime

(Q07) Masato Minamitsuji (YITP)

Volume stabilization in a warped flux compactification model

(Q08) Takashi Tamaki (Waseda Univ.)

Ambiguity of black hole entropy in loop quantum gravity II

(Q09) Yasunari Kurita (Osaka City Univ.)

Mass, tension and thermodynamics of Kaluza-Klein black holes

(Q10) canceled

(Q11) M. Ayub Faridi (Univ. of Punjab)

Isometric Embeddings of Reissner-Nordstrom Spacetime

(Q12) Alikram Aliev (Feza Gursev Institute)

Properties of Rotating Charged Black Holes in AdS Space