

Date: November 29, 2011

1. Title of Seminar JSPS-DST Asian Science Seminar: Challenges in Astronomy: Observational Advances

2. Purpose of Seminar

The objective of the seminar is to promote education and research in planetary sciences for highly motivated graduate students and young researchers with intensive training in areas of Astronomy and Space Science by providing them with an opportunity to interact with leading scientists in a specific field. The seminars comprise lectures by experts in the subject fields, discussions, practical training, study visits, and other components. The title is "Challenges in Astronomy: Observational Advances." The observational part of astronomy has revealed various, important phenomena in the Universe collaborating with theoretical works, and advancing fronts in well-established parts, e.g., optical-infrared, radio, high-energy radiations. Furthermore, the gravitational wave is expected to be detected in near future, and the advancement of "virtual observatory" would enable astronomers to conduct multi-wavelength data-intensive research, as the 4th paradigm in astronomy. Young astronomers are expected to learn about a world-wide trend for constructing a wider and concrete base of their own research.

3. Period

From September 26th, 2011 through October 3rd, 2011 (8 days)

4. Venue

School : Minami Awaji Royal Hotel

Address: 317 Fukurahei, Minamiawaji, Hyogo 656-0503, Japan

Phone: +81 799 52 3011

Fax: +81 799 52 3770

Japanese site:<http://www.daiwaresort.co.jp/awaji/index.html>

English site: http://www.daiwaresort.co.jp/english/20_awaji.html

Facility Tour from Awaji: Kamioka Observatory

Japanese site:<http://www-sk.icrr.u-tokyo.ac.jp/>

English site: <http://www-sk.icrr.u-tokyo.ac.jp/index-e.html>

5. Organization

(1) Cosponsors

Japan Side	Japan Society for the Promotion of Science
	Osaka University
Indian Side	Department of Science and Technology, India
	Tata Institute of Fundamental Research

(2) Organizer

1) Japan side

Name in full Hiroshi Shibai
Affiliation and position
Professor
Osaka University,
Graduate School of Science

2) Indian side

Name in full Rajaram Nityananda
Affiliation and position
Professor
Tata Institute of Fundamental Research
Department of Astronomy and Astrophysics

6. Program: Agenda, topics, related activities (e.g., reception, excursion)

Topic of the school:

Challenges in Astronomy: Observational Advances

The main part of the school will be a series of lectures on 'Recent and Future Advances in Observational Astronomy.' The observational part of astronomy has revealed various, important phenomena in the Universe collaborating with theoretical works, and advancing fronts in well-established parts, e.g., optical-infrared, radio, high-energy radiations. Furthermore, the gravitational wave is expected to be detected in near future, and the advancement of "virtual observatory" would enable astronomers to conduct multi-wavelength data-intensive research, as the 4th paradigm in astronomy. Young astronomers are expected to learn about a world-wide trend for constructing a wider and concrete base of their own research.

Lectures:

Internationally well-established experts in various fields will review recent progress in our understandings of those fields. A final program is listed below:

Program:

September 26 (Monday)

15:00-18:00 Registration

18:00-21:00 Opening Reception

September 27 (Tuesday)

7:30-08:45 Breakfast

8:45-09:00 Opening Keynote: Yoshitsugu Nakagawa (CPS, Japan)

9:00-10:15, 10:45-12:00 (Chair: Yoichi Itoh)

Lecture I: Sebastian Wolf (Univ. of Kiel, Germany)

- The Birthplace of Planets : Observations and Modeling of Circumstellar Disks

12:30 - 13:30 Lunch

14:00 - 15:15, 15:45 - 17:00 (Chair: Takahiro Sumi)

Lecture II: David Bennett (Univ. Notre Dame, USA)

- Detection of Extrasolar Planets by Gravitational Microlensing from the Ground and Space

18:00 - 19:00 Dinner

19:00 - 21:00 Poster session 1 with short talks

September 28 (Wednesday)

07:30 - 09:00 Breakfast

9:00 - 10:15, 10:45 - 12:00 (Chair: Masaki Ishiwatari)

Lecture III: Annapurni Subramaniam (IIA, India)

- Probing the Geography, History, and Chemistry of Nearby Galaxies with Future Telescopes

12:30 - 13:30 Lunch

14:00 - 15:15, 15:45 - 17:00 (Chair: Manabu Yuasa)

Lecture IV-a: Ajit Kembhavi (IUCAA, India)

- Virtual Observatories: Tools and Applications

Lecture IV-b: Masatoshi Ohishi (NAOJ, Japan)

- Data Discovery in and Science Results by means of VOs

18:00 - 19:00 Dinner

19:00 - 21:00 Poster session 2 with short talks

September 29 (Thursday)

7:30 - 9:00 Breakfast

9:00 - 10:15, 10:45 - 12:00 (Chair: Hiroaki Isobe)

Lecture V: Jayaram Chengalur (NCRA/TIFR, India)

- Atomic Hydrogen in the Universe

12:30 - 13:30 Lunch

14:00 - 18:00 Excursion : Hanshin-Awaji Earthquake memorial museum

18:00 - 19:00 Dinner

19:00 - 21:00 Free Discussions

September 30 (Friday)

7:30 - 9:00 Breakfast

9:00 - 10:15, 10:45 - 12:00 (Chair: Kiyoshi Kuramoto)

Lecture VI: Hideyo Kunieda (Nagoya Univ., Japan)

- Violent Universe Explored by Japanese X-ray Satellites

12:30-13:30 Lunch

14:00 - 15:15, 15:45 - 17:00 (Chair: Hideyuki Tagoshi)

Lecture VII: Nobuyuki Kanda (Osaka City Univ., Japan)

- Frontier of Gravitational Wave Astronomy - Opening New Window of Astrophysics and Cosmology

Lecture 1: Fundamentals of Gravitational Wave and its Detection

Lecture 2: Physics, Astrophysics and Cosmology with Gravitational Waves

18:00 - 21:00 Banquet

Facility Tour to Kamioka Observatory

Oct 1 (Saturday)	
7:30 - 9:00	Breakfast
9:00	leave Minami-Awaji Royal Hotel [bus]
13:00	lunch at Hikone Castle
17:00	arrive at Takayama City
18:00	dinner at Matsuri-no-mori (http://www.togei-hida.co.jp/english/index.html)
	hotel: Takayamaouan
Oct 2 (Sunday)	
9:00	leave the hotel [bus]
10:00	arrive at Shirakawa-go
13:00	arrive at Takayama, free time (lunch)
18:45	dinner at Takayama Green Hotel in Takayama City
	hotel: Takayamaouan
Oct 3 (Monday)	
8:00	leave the hotel [bus]
10:00	arrive at Kamioka Observatory, tour to CLIO Rules for visitors.pdf へのリンク (http://www.icrr.u-tokyo.ac.jp/gr/clio/clio.html)
11:00	lunch

13:00	tour to Super Kamiokande (http://www-sk.icrr.u-tokyo.ac.jp/sk/index-e.html)
15:00	leave Kamioka Observatory [bus]
17:11	leave Toyama Station [train]
	dinner in the train
20:32	arrive at Shin-Osaka Station
22:00	hotel: Kansai Airport Washington Hotel
Oct 4 (Tuesday)	
	free time (tour to the Osaka city center)
	hotel: Kansai Airport Washington Hotel

7. Lecturers and Participants

1) Number of Persons

	Lecturers	Participants	Total
Japan side	23	16	39
(Number who participated under program funding)	14	16	30
Indian side	4	20	24
(Number who participated under program funding)	4	20	24
Other persons	2	5	7
(Number who participated under program funding)	2	0	2
Total	29	41	70
(Number who participated under program funding)	20	36	56

2) List

A: Lecturers

Name in full	Position /Affiliation/ Institution (Country of affiliated institution)	Remarks
-Japan side		
Nobuyuki Kanda	Professor/Osaka City University	*
Hideyo Kunieda	Professor/Nagoya University	*
Masatoshi Ohishi	Associate Professor /National Astronomical Observatory of Japan	*
- Indian side		
Jayaram Chengalur	Professor/National Centre for Radio Astrophysics (NCRA-TIFR)	*
Ajit Kembvahi	Professor/The Inter-University Centre for Astronomy and Astrophysics (IUCAA)	*
Annapurni Subramaniam	Professor/Indian Institute of Astrophysics (IIA)	*
Durgesh Tripathi	Professor/The Inter-University Centre for Astronomy and Astrophysics (IUCAA)	*
-Other Persons		
David Bennet	Professor/ University of Notre Dame, Physics Department	*

Sebastian Wolf	Professor/University of Kiel	*
-Other Persons		
Hiroshi Shibai	Professor/Osaka University	*
Hideyuki Tagoshi	Assistant Professor/Osaka University	*
Takahiro Sumi	Associate Professor /Osaka University	*
Misato Fukagawa	Assistant Professor/Osaka University	*
Manabu Yuasa	Professor/Kinki University	*
Masaki Ishiwatari	Associate Professor /Hokkaido University	*
Jun Kimura	Researcher /Hokkaido University	*
Takayuki Tanigawa	Researcher /Hokkaido University	*
Koichiro Sugiyama	Assistant Professor/Hokkaido University	*
Tetsuo Yamamoto	Professor/ Hokkaido University	
Kei Kuramoto	Professor/ Hokkaido University	
Hiroaki Isobe	Assistant Professor /Kyoto University	*
Yoichi Ito	Associate Professor /Kobe University	*
Kou Yamada	Researcher /Kobe University	
Seiya Nishizawa	Assistant Professor/ Kobe University	
Ayako Suzuki	Researcher /Kobe University	
Hiroshi Kimura	Associate Professor /Kobe University	
Yoshiyuki Takahashi	Assistant Professor/Kobe University	
Yoshiyuki Hayashi	Professor/ Kobe University	
Yoshitsugu Nakagawa	Professor/ Kobe University	

Place a check [*] in the Remark Column for those who participated using JSPS's seminar funding.

B: Participants

Name in full	Position /Affiliation/ Institution(Country of affiliated institution)	Remarks
-Japan side		
Daisuke Suzuki	Ph.D.Student/Osaka University	*
Yusuke Ito	Ph.D.Student/Osaka University	*
Kodai Yamamoto	Ph.D.Student/Osaka University	*
Tetsuo Kano	Ph.D.Student/Osaka University	*
Kouhei Wada	Ph.D.Student/Osaka University	*
Tomoaki Nakamura	Ph.D.Student/Kobe University	*
Kazuhiro Kanagawa	Ph.D.Student/Hokkaido University	*
Shotaro Sakai	Ph.D.Student/Hokkaido University	*
Takuhiro Aota	Ph.D.Student/Kobe University	*
Tetsuya Matsui	Ph.D.Student/Kobe University	*
Iori Tani	Ph.D.Student/Kobe University	*
Noriyuki Kato	Ph.D.Student/Kobe University	*
Sho Manabe	Ph.D.Student/Hokkaido University	*
Takashi Shimonishi	Ph.D.Student/Tokyo University	*
Singh Alkendra Pratap Kunwar	Ph.D.Student/Kyoto University	*
Akiyoshi Nouda	Technical Adviser/Hokkaido University	*
-Indian side		
Nilkanth Dattatray Vagshette	Ph.D.Student/ SRTM University	*
Sheelu Abraham	Ph.D.Student/ Mahatma Gandhi University	*
Nisha Katyal	Ph.D.Student/ The Inter-University Centre for Astronomy and Astrophysics (IUCAA)	*

Jithesh Vadakkumthani	Ph.D.Student/ University of Calicut	*
Bhavya Bhaskaran	Ph.D.Student/ Cochin University of Science&Technology	*
Ananta Charan Pradhan	Ph.D.Student/ Indian Institute of Astrophysics(IIA)	*
Kaushal	Ph.D.Student/ University of Delhi	*
Kaustubh PrakashVaghmare	Ph.D.Student/ The Inter-University Centre for Astronomy and Astrophysics (IUCAA)	*
Soma Mandal	Assistant Professor/Taki Government College	*
Sonali Sachdeva	Ph.D.Student/ University of Delhi	*
Tabasum Bhat Masood	Ph.D.Student/ University of Kashmir	*
Bari Bhat Maqbool	Ph.D.Student/ University of Kashmir	*
Laxmikant Chaware	Ph.D.Student/ Pt.Ravishankar Shukla University	*
Shruti Tripathi	Ph.D.Student/ DDU Gorakhpur University	*
Shalima Puthiyaveettil	Postdoc/ The Inter-University Centre for Astronomy and Astrophysics (IUCAA)	*
Devraj Pawar	Assistant Professor/ University of Mumbai	*
Yogesh Chandola	Ph.D.Student/ National Centre for Radio Astrophysics(NCRA/TIFR)	*
Himadri Sekhar Das	Assistant Professor/ Assam University	*
Swarnadeep Biswas	Assistant Professor/ Department of Physics Assam University	*
Broja Gopal Dutta	Assistant Professor/ Y.S.Palpara College	*
-Other Persons		
Fei Zheng	Ph.D.Student/ Institute of Atmospheric Physics, Chinese Academy of Sciences	
Shan Yin	Ph.D.Student/ Institute of Atmospheric Physics, Chinese Academy of Sciences	
Chin Ping Hu	Ph.D.Student/ National Central university	
Nguyen Huynh Anh Le	Ph.D.Student/ Kyung Hee University	
Kiehunn Bach	Ph.D.Student/ Yonsei University	

Place a check [*] in the Remark Column for those who participated using JSPS's seminar funding.

8. Please describe the achievements of the seminar.

Achievement of Asia Academic Seminar in Space and Astronomical Sciences in 2011

The above-mentioned seminar was held for providing Asian young researchers with intensive training in areas of Astronomy and Space Science. The seminars comprise lectures by experts in the subject fields, discussions, practical training, study visits, and other components in September 26 - October 3 in 2011 at Awaji Island, as a joint seminar with Eighth International Planetary School operated by the Center for Planetary Science (CPS) of Kobe University and was supported by Department of Science and Technology (DST), India,

The objective of the seminar/school is to promote education and research in planetary sciences for highly motivated graduate students and young researchers by providing them with an opportunity to interact with leading scientists in a specific field. Topic of the coming school is "Challenges in Astronomy: Observational Advances."

The main part of the school will be a series of lectures on 'Recent and Future Advances in Observational Astronomy.' The observational part of astronomy has revealed various, important phenomena in the Universe collaborating with theoretical works, and advancing fronts in well-established parts, e.g., optical-infrared,

radio, high-energy radiations. Furthermore, the gravitational wave is expected to be detected in near future, and the advancement of "virtual observatory" would enable astronomers to conduct multi-wavelength data-intensive research, as the 4th paradigm in astronomy. Young astronomers are expected to learn about a world-wide trend for constructing a wider and concrete base of their own research.

The seminar/school was composed of two parts, the school and a facility tour. The program was as follows;

- Sep. 26 (Mon) Registration & Opening Reception
- Sep. 27 (Tue) Four Lectures (6 hours in total) & Poster Session
- Sep. 28 (Wed) Four Lectures (6 hours in total) & Poster Session
- Sep. 29 (Thu) Two Lectures (3 hours in total) & Excursion
- Sep. 30 (Fri) Four Lectures (6 hours in total) & Banquet
- Oct. 1 (Sat) Move to Takayama
- Oct. 2 (Sun) (Holiday)
- Oct. 3 (Mon) Facility Tour of CLIO and Super-Kamiokande

Eight lecturers (3 from Japan, 3 from India, 1 from US and 1 from Germany) provided us outstandingly valuable lectures, and the participants were well satisfied and inspired. The participants were provided very good explanations about the CLIO and Super-Kamiokande Facility, too.

Titles of lectures we were given are

- The Birthplace of Planets : Observations and Modeling of Circumstellar Disks
- Detection of Extrasolar Planets by Gravitational Microlensing from the Ground and Space
- Probing the Geography, History, and Chemistry of Nearby Galaxies with Future Telescopes
- Virtual Observatories: Tools and Applications
- Data Discovery in and Science Results by means of VOs
- Atomic Hydrogen in the Universe
- Violent Universe Explored by Japanese X-ray Satellites
- Frontier of Gravitational Wave Astronomy - Opening New Window of Astrophysics and Cosmology

These lectures well covered much of the cutting edge researches in space and astronomical sciences.

The number of participants was 86 in total, including 4 Indian lecturers and 21 Indian participants. Indian participants were composed of young faculty members and PhD students. The communication between Indian (and other Asian) participants and Japanese students are surprisingly dense. For example, they were discussing over the poster sessions of the first two nights in front of the poster panels. The communication between them may be promoted by room sharing in the hotel.

Finally, the main purpose of the seminar was promotion of future collaborations among younger researchers. At least two seeds of new collaborations have so far proposed from the Indian participants. This fact suggests the seminar was successful in this mean. Many administrative staffs of Osaka and Kobe universities, as well as secretaries of IUCAA, India, have significantly contributed to the success of this seminar.