Enclosure 4

16-31 May, 2013

2° Bego Rencontres

UNICE- France

This second "BEGO Rencontres" meeting will take place at the University of Nice "Sophia Antipolis" from the 16 to the 31th of May. It is specially devoted to frontier topics in relativistic astrophysics and to the students of the IRAP PhD Program. Students from the EMJD Program will participate. The meeting is open to all interested scientists and graduate students .The registration fee is 150€ Ample time for discussions will be granted. The major topics to be discussed are Neutron Stars and Black Holes,Cosmology, Gamma Ray Bursts, Dark Matter, Supernovae, strong fieldsin experiments on earth ground and from space. An excursion at Vallée des Merveilles will be organized.

International Organizing Committee

Giovanni Amelino-Camelia
Vladimir Belinski
Carlo Luciano Bianco
Donato Bini
Sandip Kumar Chakrabarti
Pascal Chardonnet (Co-chairman)
Christian Cherubini
Thibault Damour
Jann Einasto
Simonetta Filippi
Sergio Frasca
Filippo Frontera
Jean-Marc Gambaudo
Yipeng Jing
Hagen Kleinert
Olivier Legrand
Francois Mignard
Hermann Nicolai
Mario Novello
Elène Politano
Kjell Rosquist
Jorge Rueda
Remo Ruffini (Chairman)
Felix Ryde
Farrokh Vakili
Gregory Vereshchagin
She-Sheng Xue
Shuangnan Zhang

For information and registration, please contact:
Annapia Del Beato annapia.delbeato@icranet.org
Federica Di Berardino Federica.diberardino@icranet.org

http://www.icranet.org/2nd_bego

2nd Bego Rencontres

16-31 May 2013 – Nice

Program

1st week: 16-17 May *Chairman: Baranov*		
	Thursday 16	**Friday 17**
9-10	RUFFINI	KEITEL
10-11	NOVELLO	KEITEL
11-11.30	*coffee break*	
11.30-12.30	MAVROMATOS	MAVROMATOS
	Lunch break	
	Chairman: Benedetti	
14-15	DE ANGELIS	RUEDA
15-15.30	*coffee break*	
15.30-16.30	MIRZOYAN	RUEDA
16.30-19.00	Faculty Meeting	ARGUELLES GALTSYAN
20-22.30	1st Cycle with Faculty	

2nd week: 20-24 May *Chairman: Dutta*					
	Monday 20	**Tuesday 21**	**Wednesday 22**	**Thursday 23**	**Friday 24**
9-10		AMATI	TITARCHUK	PISANI	BOER
10-11		FRONTERA	CHARDONNET	IZZO	BOER
11-11.30		*coffee break*			
11.30-12.30		DELLA VALLE	DELLA VALLE	MUCCINO BARBARINO	BARDHO
	Lunch break				
		Chairman: Fleig			
14-15		AMATI	PENACCHIONI	*Villa Ratti*	DERELI
15-15.30		*coffee break*			
15.30-16.30		FRONTERA	PERLICK	FILINA	IYYANI
16.30-17.30		SAWANT	SVERSUT	ENDERLI	

3rd week: 27-31 May *Chairman: Fraga*					
	Monday 27	**Tuesday 28**	**Wednesday 29**	**Thursday 30**	**Friday 31**
9-10	AHARONIAN	AHARONIAN	NATOLI	CHESNEAU	Faculty and Students at Villa Ratti
10-11	MANDOLESI	MANDOLESI	XUE	KHORRAMI	
11-11.30	*Coffee break*				
11.30-12.30	RUEDA	PETROV	PETROV	NATOLI	
	Lunch break				
	Chairman: Martins de Carvalho				
14-15	AHARONIAN	VERESHCHAGIN	VERESHCHAGIN	BIANCO	Faculty and Students at Villa Ratti Conclusions
15-15.30	*Coffee break*				
15.30-16.30	GREGORIS	BEGUE	WU PEREIRA	LOU Y.	
16.30-17.30	GOMES CACERES	SUVENDU	XUE	STROBEL LUDWIG	

International Center for Relativistic Astrophysics Network

PESCARA 2013 MEETING

[Back]

ORGANIZATION
ICRANet Seats
Members
Universities
Director and Staff
Personal Pages

MEETINGS
Upcoming Meetings
IYA 2009 Meetings
Marcel Grossmann
Galileo - Xu Guangqi
William Fairbank
Italian-Korean
Italian-Sino Meeting
ICRANet Meeting
Stueckelberg Meeting
C. Lattes Meeting
Bego Rencontre
Urca Meetings
Zeldovich Meetings
Other Meetings
Erasmus Mundus Schools
Weekly Seminars
Yearly Scientific Meeting

RESEARCH
Research Groups
Visiting Scientists

PUBLICATIONS
Books
Proceedings
Articles Database

The 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics (June 3-21, Pescara, Italy)

On the Occasion of the 50th Anniversary of the Kerr solution of the Einstein's equations, in presence of Roy Kerr and of the ICRANet Scientific Committee.

IOC

International Organizing Committee

SCIENTIFIC PROGRAM

Program

Scientific Objectives

Talks

SOCIAL PROGRAM

Exhibitions

Click here to download the preliminary poster (TBD)

REGISTRATION

Register now

Registration fee

LOCATION

Map

CONTACTS

Annapia Del Beato

Federica Di Berardino

For suggestions&comments write to the Webmaster

2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics
on the Occasion of the 50th Anniversary of the Kerr solution of the Einstein's equations

June 3-17, 2013 – ICRANet – Rome and Pescara

1st week: 3-7 June					
	Monday 3	**Tuesday 4**	**Wednesday 5**	**Thursday 6**	**Friday 7**
Chairman	Chakrabarti	Vereshchagin	Xue	Belinski	Bisnovaty
9-10	Ruffini	Kerr	Kerr	Kleinert	Di Piazza
10-11	Belinski	Belinski	Damour	Damour	Damour
11-11.15	*Coffee break*				
11.15-12.15	Mavromatos	Aksenov	Mavromatos	Jantzen	Kleinert
12.15-13.15	Rueda	Bini	Bluemlein	Bluemlein	Jantzen
	Lunch Break				
15.00-16.00	***Penacchioni***	***Sahakyan***	***Arguelles***	***Gruber***	***Haney***
16.00-17.00	Berezin	Connection with Rome	Aksenov	Chakrabarti	Alekseev
17.00-17.15	*Coffee break*				
17.15-18.15	Bini	Berezin	Chakrabarti	Cherubini	Alekseev
18.15-19.15					Lou

2nd week: 10-14 June					
	Monday 10	**Tuesday 11**	**Wednesday 12**	**Thursday 13**	**Friday 14**
Chairman	Aharonian	Frontera	Braga	Della Valle	Aksenov
9-10	Lämmerzahl	Braga	Gionti	Braga	Aharonian
10-11	Di Piazza	Di Piazza	Leibundgut	Leibundgut	Jetzer
11-11.15	Coffee break				
11.15-12.15	Meynet	Meynet	Padovani	Padovani	Della Valle
12.15-13.15	Frontera	Tavani	Giommi	Giommi	Izzo
	Lunch Break				
15.00-16.00	***Fraga***	***Frontera Valsan***	**14:30 Meeting of the Scientific Committee**	***Muccino***	***Martins***
16.00-17.00	Lämmerzahl	Mannucci	Amati	Williams	Williams
17.00-17.15	*Coffee break*				
17.15-18.15	Tavani	Ruffini	Mannucci	Pastorello	Pastorello
18.15-19.15	Lou Y.	Battiston	Della Valle		Feng L.L.

	Monday 17
Chairman	Chechetkin
9-10	Nicolai
10-11	Nicolai
11-11.15	Coffeee break
11.15-12.15	***Dutta***
12.15-13.15	***Boshkayev***
	Lunch break
15.00-16.00	***Fleig***
16.00-17.00	***Baranov***
17.00-17.15	Coffeee break
17.15-18.15	Bisnovatyi
18.15-19.15	Chardonnet

THE FIRST URCA MEETING ON RELATIVISTIC ASTROPHYSICS

[Back]

ORGANIZATION
ICRANet Seats
Members
Universities
Director and Staff
Personal Pages

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RESEARCH
Research Groups
Visiting Scientists

PUBLICATIONS
Books
Proceedings
Articles Database

The first URCA meeting on Relativistic Astrophysics
ICRANet Rio
(24-29 June 2013 – Rio de Janeiro, Brazil)

IOC

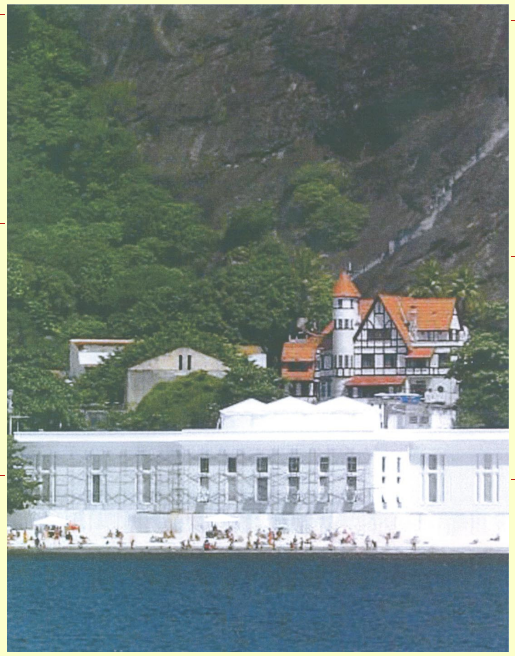
International Organizing Commettee

SCIENTIFIC PROGRAM

Program

Scientific Objectives

Talks



Click here to download the preliminary poster (TBD)

REGISTRATION

Register now

Registration fee: 200€

CONTACTS

Annapia Del Beato

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Flavia Schaller

For suggestions&comments write to the Webmaster

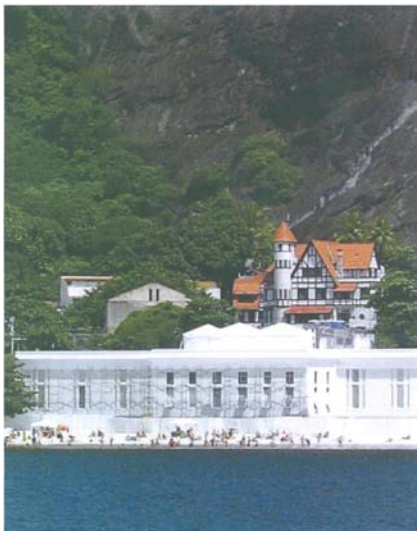
The first URCA meeting on Relativistic Astrophysics

ICRANet Rio at CBPF (Rua R. Dr. Xavier Sigaud, 150 - Urca, Rio de Janeiro, 22290-180)
24-28 June 2013 – Rio de Janeiro

24-28 June							
Chairman	**Monday 24**	**Chairman**	**Tuesday 25**		**Wednesday 26**	**Thursday 27**	**Friday 28**
	Pinto Neto		Malheiro		Braga	Bergliaffa	Novello
9-9.15	Opening by F. LAZARO FREIRE *Director CBPF* R. RUFFINI *Director ICRANet*						
9.15-9.55	***Penacchioni***	9-9.40	***Belvedere***	9-9.40	***Siutsou***	***Fleig***	***Fraga***
5 minutes	*discussions*	5 minutes	*Discussions*	5 minutes	*discussions*	*discussions*	*discussions*
10.00-10.40	***Pisani***	9.45-10.25	***Martins***	9.45-10.25	***Liccardo***	Makler	***Arguelles***
5 minutes	*discussions*	5 minutes	*discussions*	5 minutes	*discussions*	*Discussions*	*discussions*
10.45-11.00	*Coffee break*	10.30-10.45	*Coffee break*				
11.00-11.40	Ruffini	10.45-11.25	Rueda	10.45-11,25	***Benedetti***	Giommi	***Gruber***
5 minutes	*discussions*	5 minutes	*discussions*	*5 minutes*	*discussions*	*discussions*	*discussions*
11.45-12.25	Izzo	11.30-12.10	Negreiros	11.30-12.10	***Gruber***	Braga	Press Conference
5 minutes	*discussions*	5 minutes	*discussions*	*5 minutes*	*discussions*	*discussions*	*discussions*
12.30-12.55	***Barbarino***	12.15-12.55	Mac Keiser	12.15	Meeting with IRAP PhD candidates	Round table on BSDC	Conclusions NOVELLO, LAZARO and RUFFINI
5 minutes	*discussions*	*5 minutes*	*discussions*				

We are very happy to send you the program of the first URCA meeting on Relativistic Astrophysics to be held at ICRANet Rio, Rio de Janeiro on June 24-28. One of the main topics is the presentation of the thesis work of our recent IRAP Ph D students (names in bold).

I would like to ask you to publicize this meeting, especially among potential graduate students in your Institution who would like to apply for the IRAP PhD program (http://www.icranet.org/index.php?option=com_content&task=view&id=7&Itemid=370) as well as the program sponsored by Capes (http://www.icranet.org/index.php?option=com_content&task=view&id=721)



The Cassino da Urca today
where George Gamow and Mario Schoenberg invented the URCA Process

The 13th Italian-Korean Symposium on Relativistic Astrophysics

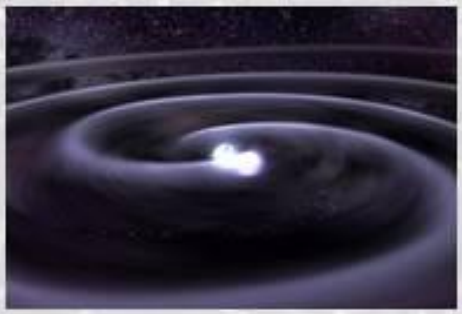
http://www.apctp.org/plan.php/ik2013

15 - 19 July 2013, Ewha Womans University, Seoul, Korea

Organizing Committee

Myeong-Gu Park (Kyungpook, Chair), Hyung Won Lee (Inje Univ., Korea, Co-Chair) , Remo Ruffini (ICRANet/U.of Rome, SOC Chair), Sung-Won Kim (Ewha, SOC Co-Chair), Sangpyo Kim (Kunsan), Xue She-Shang (ICRANet), Vladimir Belinski (ICRANet), Il Hung Park (Sungkyunkwan), Hang Bae Kim (Hanyang), Gungwon Kang (KISTI), John J. Oh (NIMS), Jin Young Kim (Kunsan), Jungjai Lee (Daejin), Hyeong-Chan Kim (Chungju), Kyoung Yee Kim (Inje)





List of Speakers

Pascal Chardonnet (de Savoie, France)
Jungyeon Cho (Chungnam, Korea)
Ibrar Hussain (NUST, Pakistan)
Alexander A Isayev (Kharkov, Ukraine)
Mubasher Jamil (NUST, Pakistan)
Chunglee Kim (Seoul, Korea)
Dong-Hoon Kim (Ewha, Korea)
Hang Bae Kim (Hanyang, Korea)
Hongsu Kim (KASI, Korea)
Hyeong-Chan Kim (Kor. Nat. U. of Trans., Korea)
Jin Young Kim (Kunsan, Korea)
Sang Pyo Kim (Kunsan, Korea)
Soon-Wook Kim (KASI, Korea)
Sung-Won Kim (Ewha, Korea)
Hyung Won Lee (Inje, Korea)
Jae-Weon Lee (Jungwon, Korea)
Luca Pagano (ICRANet, Italy)
Il Hung Park (Sungkyunkwan, Korea)
Mu-In Park (Kunsan, Korea)
Myeong-Gu Park (Kyungpook, Korea)
Seong Chan Park (Sungkyunkwan, Korea)
Jorge Rueda (ICRANet, Italy)
Remo Ruffini (Rome/ICRANet, Italy)
Azad Siddiqui (NUST, Pakistan)
Shesheng Xue (ICRANet, Italy)
Jong Hyuk Yoon (Konkuk, Korea)

Organizing Institutes and Sponsors

Astrophysics Division of the Korean Physical Society, ICRA and ICRANet (International Center for Relativistic Astrophysics), Erasmus Mundus Asia Pacific Center for Theoretical Physics, Inje University, Ewha Womans University, Center for Galaxy Evolution Research,

Contact

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Hyung Won Lee: hwlee@inje.ac.kr
APCTP: sec@apctp.org

The 13th Italian-Korean Symposium on Relativistic Astrophysics

July 15 (Mon), 2013 ~ July 19 (Fri), 2013

Ewha Womans University

http://www.apctp.org/plan.php/ik13

Hosted by Research Institute of Curriculum and Instruction,
Ewha Womans University,
Organized by Astrophysics Division of Korean Physical Society,
Sponsored by Asia Pacific Center for Theoretical Physics,
International Center for Relativistic Astrophysics,
Erasmus Mundus, Inje University,
and
Center for Galaxy Evolution Research.

Contents

Program

30 min. talk = 25 min. presentation + 5 min. discussion
20 min. talk = 15 min. presentation + 5 min. discussion

Venue: Education Building B (#13), BB151, Ewha Womans University

July	14	Sunday	
14:00	- 16:00		Group Collaboration Discussion
16:00	- 18:00		Organizing Committee Meeting

July	15	Monday	GRBs, SNe, Black Holes
9:00	- 9:25		Registration
9:25	- 9:30	Opening	
			Chair: Hyung Won Lee
9:30	- 10:00	Ruffini	Supernova, Gamma Ray Bursts and the concept of induced collapse
10:00	- 10:20	Pisani	A new subclass of energetic GRB-SN sources: the IGC GRB-SN family
10:20	- 10:40	Penacchioni	The IGC model an SN prediction
10:40	- 11:10		Coffee break/Registration
11:10	- 11:40	Jongmann Yang	Recent results of AMS and TA: Dark matter and UHECR
11:40	- 12:10	Sung-Won Kim	Flare-out condition of Morris-Thorne wormhole
12:10	- 12:40	She-Sheng Xue	Gravitational and electric energies in collapse of spherically thin capacitor

12:40 - 14:30		Lunch
		Chair: Chardonnet
14:30 - 15:00	Mu-In Park	Towards rotating black holes in Horava graviy
15:00 - 15:30	Hussain	Energy of a slowly rotating black hole in Horava-Lifshits gravity by approximate Lie symmetry methods
15:30 - 15:50	Ludwig	Collapse and vibrational modes of charged fluids
15:50 - 16:20		Coffee break
16:20 - 16:50	Hongsu Kim	Pair creation of charged black holes and Bonnor-type Black dihole solution
16:50 - 17:20	Jong Hyuk Yoon	Problem of time in 2+2 formalism
17:20 - 17:50	Daeho Ro	Various types of Fubini instantons in curved space

July 16	Tuesday	Neutron Stars, White Dwarfs: Theory and Observations
		Chair: Jong Hyuk Yoon
9:30 - 10:00	Rueda	Global and local charge neutrality in neutron stars: static and rotating cases
10:00 - 10:30	Chunglee Kim	The Double Pulsar PSR J0737-3039
10:30 - 10:50	De Carvalho Martins	Neutron star cooling
10:50 - 11:20		Coffee break
11:20 - 11:50	Isayev	Upper bound on the magnetic field strength in the quark core of a strongly magnetized compact star
11:50 - 12:10	Wu	On the surface and Coulomb energy of neutron star

		matter
12:10 - 12:30	Wang	How does neutron star play a role in the induced gravitational collapse GRBs.
12:30 - 12:50	Jaehyun Lee	Stiffer EoS for compact star with new scaling law
12:50 - 14:30		Lunch
		Chair: Mu-In Park
14:30 - 15:00	Yong-Yeon Keum	Cosmic ray flux hardening at TeV scale energies: Cream-Pamela Anomaly
15:00 - 15:30	Siddiqui	Some Exact Solutions of the Einstein-Maxwell Equations
15:30 - 16:00		Coffee break
16:00 - 16:30	Jin Young Kim	Bending of light ray in nontrivial QED vacua
16:30 - 17:00	Dong-Hoon Kim	Gravitational and Electromagnetic Radiation Reaction Effects in Curved Spacetime: Point-particle and
17:00 - 17:30	Boshkayev	General Relativistic White Dwarfs and Their Astrophysical Implications
17:30 - 17:50	Uribe	Stability of Magnetized White Dwarfs
18:00 - 20:00		Banquet (Education Building B, BB152)

July 17	Wednesday	Cosmology, Dark Matter
		Chair: Rueda
9:30 - 10:00	Hyung Won Lee	Temperature dependence of degenerate neutrino energy density
10:00 - 10:20	Arguelles	The Dark Matter distribution in galaxies: a novel approach

10:20 - 10:50	Seong Chan Park	Superheavy dark matter in light of dark radiation
10:50 - 11:20		Coffee break
11:20 - 11:40	Fraga	Semidegenerate system of fermions as Dark matter
11:40 - 12:00	Seyen Kouwn	Dark energy with logarithmic cosmological fluid
12:00 - 12:30	Myeong-Gu Park	Image Separation Statistics of SDSS Quasar Lenses: Application to Cosmology and Galaxy Properties
12:30 - 14:00		Lunch
		Chair: Jin Young Kim
14:00 - 14:30	Pagano	Cosmology with Planck
14:30 - 15:00	Hyeong-Chan Kim	Preinflationary scenario in Eddington-inspired Born Infeld gravity
15:00 - 15:30	Jae-Weon Lee	Gravity and dark energy from information loss at horizons
15:30 - 16:00	Jamil	Nonommutative wormholes in f(R) gravity
16:00 - 18:00		Group Discussions

July 18	Thursday	GRBs and Astrophysics
		Chair: Hang Bae Kim
9:30 - 10:00	Sang Pyo Kim	Magnetic Vacuum and Electron-Positron Production from Neutron Stars and Magnetars
10:00 - 10:30	Chardonnet	Gamma-Ray Bursts as the Missing Link in Stellar Evolution
10:30 - 11:00	Il Hung Park	The Space Mission of Ultra-Fast Flash Observatory and Its Physics for Early Photons from Gamma Ray

		Bursts
11:00 - 11:30		Coffee break
11:30 - 11:50	Muccino	GRB 090227B, a genuine short burst, and GRB 090510, a disguised short burst in the highest CircumBurst Medium ever inferred
11:50 - 12:10	Changhyun Cho	Inspecting Radiation Dominant Region in the Gamma-ray Burst (GRB) Afterglows Using the Semi-analytic Relativistic Radiative Transfer Analysis
12:10 - 12:30	Yuri Kang	Wormholes and Phantom field
12:30 - 14:30		Lunch
		Chair: Seong Chan Park
14:30 - 15:00	Hang Bae Kim	UHECR and galactic and intergalactic magnetic fields
15:00 - 15:30	Jungyeon Cho	Physics of relativistic force-free MHD turbulence
15:30 - 16:00	Soon-Wook Kim, Jeong-Sook Kim	KVN Observations of Class I Methanol Masers produced by Outflows from Dis-fed Massive Protostars in
16:00 - 16:20	Jeong-Sook Kim, Soon-Wook Kim	KVN Polarization Observation of 2013 Small flares in Black Hole Microquasar Cygnus X-3 during MOGABA
16:20 - 16:40	Summary	
17:00 - 18:00		Individual Discussion

July 19 Friday		
09:30 - 11:30		Individual Collaboration Meeting

11:30 - 12:00	Discussion for Proceedings Publication
12:00 - 15:00	Committee Meeting for Collaboration and Next Symposium

Abstract

15 July Monday

Supernova, Gamma Ray Bursts and the concept of induced collapse

Ruffini, Remo (Univ. of Rome/ICRANet)

A new subclass of energetic GRB-SN sources: the IGC GRB-SN family

Pisani, Giovanni Battista (ICRANet)

It has been proposed that the temporal coincidence of a gamma-ray burst (GRB) and a type Ib/c supernova (SN) can be explained by the concept of induced gravitational collapse (IGC), induced by the matter ejected from a SN Ib/c accreting onto a neutron star (NS). The NS is expected to reach its critical mass to collapse to a black hole (BH) and emit a GRB. A standard luminosity light curve behavior in the late time X-ray emission of this subclass of GRBs is found.

We build a sample of GRBs belonging to this subclass of IGC GRBs associated to a SN (IGC GRB-SN sources). The selected sources have an isotropic energy Eiso > 10^52 erg and their cosmological redshifts are in the range z = 0.49 – 1.261. We focus the attention on the corresponding X-ray luminosity light curves.

We find that all the GRBs of the sample with measured redshift present a standard luminosity late time light curve in the 0.3 – 10 keV rest frame energy range. We also use these results to estimate the redshift of the GRBs of the sample with no measured redshift, finding consistent results with alternative redshift indicators.

The standard late time X-ray luminosity light curve of all the GRBs of the sample presents a common physical mechanism in this particular phase of the X-ray emission, possibly related to the creation of the NS from the SN process. This scaling law allows us to predict in advance the cosmological redshift of the IGC sources, like in the case of GRB 130609B, and the presence of the associated SN, like in the case of GRB 130427A / SN 2013cq. We are enlarging the number of this sub-class of GRBs to further verify the universal validity of this new redshift estimation method.

A new subclass of energetic GRB-SN sources: the IGC GRB-SN family

Pisani, Giovanni Battista (ICRANet)

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The IGC model an SN prediction

Penacchioni, Ana Virginia (Sapienza University of Rome)

Recent results of AMS and TA: Dark matter and UHECR

Yang, Jongmann (Ewha Womans University)

In this talk, recent results of positron fraction detected by AMS in the range of 0.5 to 350 GeV to find out the possibility of dark matter and the composition, energy spectrum, and anisotropy of ultra high energy cosmic ray by TA will be presented.

Flare-out condition of wormhole and the condition for pressure

Kim, Sung-Won (Ewha Womans University)

Wormhole is defined as the topological structure with the throat connecting two asymptotically flat spaces. In order to have and maintain the structure of the wormhole, there needs the geometrical flare-out condition, i.e., the minimal size at throat.

In the case of Morris-Thorne type wormhole, the condition is given by the huge surface tension compared to the energy density times the square of the light speed.

In this paper, we re-considered the flare-out condition for the wormhole with the Einstein equation, checked the finiteness of the pressure, and investigated its physical meaning.

We also derived the power-law form of the flare-out condition."

Gravitational and electric energies in collapse of spherically thin capacitor

Xue, Shesheng (ICRANet/University of Rome "Sapienza")

In our previous article (PHYSICAL REVIEW D 86, 084004 (2012)), we present a study of strong oscillating electric fields and electron-positron pair-production in gravitational collapse of a neutral stellar core at or over nuclear densities. In order to understand the back-reaction of such electric energy building and radiating on collapse, we adopt a simplified model describing the collapse of a spherically thin capacitor to give an analytical deX-X-SCRIPTion how gravitational energy is converted to both kinetic and electric energies in collapse. It is shown that (i) averaged kinetic and electric energies are the same order, about an half of gravitational energy of spherically thin capacitor in collapse; (ii) caused by radiating and rebuilding electric energy, gravitational collapse undergoes a sequence of ``on and off" hopping steps in the microscopic Compton scale. Although such a collapse process is still continuous in terms of macroscopic scales, it is slowed down as kinetic energy is reduced and collapsing time is about an order of magnitude larger than that of collapse process eliminating electric processes. These results indicate that it is essential to take into account, rather than ignore, electric processes in more realistic models for studying gravitational collapse of neutral stellar core at or over the nuclear density."

Towards rotating black holes in Horava graviy

Park, Mu-In (Kunsan National Univ.)

- I will think about the rotating black hole soluions in Horava gravity which has been proposed as a renormalizable gravity. Then, I will explain about the three-dimensional rotating black hole solution which has been recently found.

Energy of a slowly rotating black hole in Horava-Lifshits gravity by approximate Lie symmetry methods

Hussain, Ibrar (National University of Sciences and Technology)

Using approximate Lie symmetry methods for differential equations we have investigated the approximate symmetries of the geodesic equations in slowly rotating black hole in Horava-Lifshits gravity. Introducing mass and spin angular momentum per unit mass as a small parameter we consider second-order approximate symmetries of the slowly rotating black hole in Horava-Lifshits gravity as a second perturbation of the Minkowski spacetime. A rescaling of the arc length parameter for consistency of the trivial second-order approximate symmetries of the geodesic equations indicates that the energy in the slowly rotating black hole in Horava-Lifshits gravity has to be rescaled and the rescaling factor is r-dependent. This rescaling factor is compared with that for the Kerr-Newman black hole.

Collapse and vibrational modes of charged fluids

Ludwig, Benjamin Hendrik Martin (University of Rome "La Sapienza"/ICRANet Nice/Erasmus Mundus IRAP PhD)

I will motivate the investigation of collapse and vibrational modes of multicomponent charged fluids, and give an introduction to the equations in question, and methods for solving them.

Pair creation of charged black holes and Bonnor-type Black dihole solution

Kim, Hongsu (Korea Astronomy and Space Science Institute)

In the present study, the rate at which the charged black holes in dilaton gravity theories are pair created in electromagnetic backgrounds (i.e., electric or magnetic Melvin universe) has been explored. It turned out to be electric-magnetic duality-invariant and is indeed consistent with the famous result by J. Schwinger for the electron-positron pair creation rate in the uniform (albeit strong) electric field background.

Along this line, we also present a closed-form, analytic spacetime solution representing a Bonnor-type black dihole, namely a pair of black holes!

Problem of time in 2+2 formalism

Yoon, Jong Hyuk (Konkuk University)

We apply the Hamiltonian reduction procedure to general spacetimes of 4-dimensions using the (2+2) formalism and find privileged spacetime coordinates in which the physical Hamiltonian is expressed in true degrees of freedom only, namely, the conformal two-metric on the cross section of null hypersurfaces and its conjugate momentum. The physical time is the area element of the cross section of null hypersurface, and the physical radial coordinate is defined by {\it equipotential} surfaces on a given hypersurface of constant physical time. The physical Hamiltonian is {\it constraint-free} and manifestly {\it positive-definite} in the privileged coordinates.

We present the complete set of the Hamilton's equations, and find that they coincide exactly with the Einstein's equations in the privileged coordinates, showing that our Hamiltonian reduction is self-consistent and respects the general covariance. This work is a generalization of ADM Hamiltonian reduction of midi-superspace to 4-dimensional spacetimes with no isometries.

Various types of Fubini instantons in curved space

Ro, Daeho (Sogang University)

We study about the various types of Fubini instantons in curved space. We show that there exist various types of solutions with respect to the types of gravity.

Global and local charge neutrality in neutron stars: static and rotating cases

Rueda, Jorge (ICRANet and Sapienza University of Rome)

The traditional equations of equilibrium of neutron stars, the Tolman-Oppenheimer-Volkoff (TOV) equations assume the condition of local charge neutrality and thus does not account for any electromagnetic forces. When Coulomb interactions are introduced, we shown that the TOV equations have to be superseded by what we have called the Einstein-Maxwell-Thomas-Fermi (EMTF) system of equations, which are integrated under the constraint and global, but not local, charge neutrality. The EMTF system implies the constancy of the particle electro-chemical potentials throughout the star leading to different core-crust boundary conditions, which results in a different structure of the crust and therefore a new mass-radius relation for neutron stars. We show the configurations of equilibrium of the EMTF system of equations both for the static and uniformly rotating cases. The mass, radius, angular momentum, quadrupole moment, and moment of inertia are computed. Astrophysical consequences are then discussed.

The Double Pulsar PSR J0737-3039

Kim, Chunglee (Seoul National University)

I will present recent progresses made in both observation and theoretical understanding of the Double Pulsar (PSR J0737-3039). It consists of two radio active pulsars (labeled as A and B) that are bound in a slightly eccentric (e=0.08), tight (2.4-hr period) orbit. All five post-Keplerian parameters are measured independently from A and B pulsars, putting the stringent constraints on the Einstein's general relativity. Moreover, B has been detectable only until 2008, due to the geodetic precession that changes the direction of pulsar's magnetic axis with respect to our-line-of-sight. PSR J0737-3039 is also interesting regarding the input parameters of NS-NS merger simulations. It is the only NS-NS binary that we are able to estimate relative angles between spin and magnetic axes of the two neutron stars from pulsar observation. I will summarize highlights of observations of this unique binary and discuss their implications for astrophysical modeling as well as the detection of gravitational waves.

The relativistic Feynmam MetropolisTeller theory at finite temperatures and neutron stars cooling

de Carvalho Martins, Sheyse (La Sapienza University of Rome)

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Upper bound on the magnetic field strength in the quark core of a strongly magnetized compact star

Isayev, Alexander A (Kharkov Institute of Physics and Technology)

- "The impact of a strong magnetic field up to 10^{20}~G on the behavior of matter in the quark core of a strongly magnetized hybrid star is studied. A hybrid star consists of the crust of nuclear matter and the core of strange quark matter. It is found that in magnetic fields larger than some critical value H_c, the longitudinal (along the magnetic field) pressure becomes negative leading to the appearance of the instability. The critical field H_c is determined which, in dependence on the total baryon number density and the pressure of the bag where the quarks reside, may be somewhat smaller or larger than 10^{18}~G. In fact, the value of the critical field for the appearance of the longitudinal instability represents the upper bound on the magnitude of the magnetic field, which can be reached in the core of a hybrid star.

In such strong magnetic fields, the effects of the pressure anisotropy become important. The anisotropic equation of state of the quark core in a compact hybrid star is found for magnetic fields up to the critical field H_c."

On the surface and Coulomb energy of neutron star matter

Wu, Yuanbin (University of Rome "La Sapienza")

It has been recently shown that taking into account strong, weak, electromagnetic, and gravitational interactions, and fulfilling the global charge neutrality of the system, a transition layer will happen between the core and crust of neutron stars, at the nuclear saturation density. We use relativistic mean field theory together with the Thomas-Fermi approximation to study the detailed structure of this transition layer and calculate its surface and Coulomb energy. We find that the surface tension is proportional to a power-law function of the baryon number density in the core bulk region. We also analyze the influence of the gravitational field on the structure of the transition layer and the value of the surface tension to compare and contrast with known phenomenological results in nuclear physics. Based on the above results we study the instability against Bohr-Wheeler surface deformations in the case of neutron stars obeying global charge neutrality. Assuming the core-crust transition at nuclear density $\rho_{core}\approx 2.7\times 10^{14}$ g cm^{-3}, we find that the instability sets the upper limit to the crust density, $\rho_{crust}^{crit}\approx 1.2 \times 10^{14}$ g cm^{-3}. This result implies a non-zero lower limit to the maximum electric field of the core-crust transition surface and makes inaccessible a limit of quasi-local charge neutrality reachable in the limit $\rho_{crust}=\rho_{core}$. The results of this work open the way to a more general analysis of the stability of these transition surfaces accounting for other effects such as gravitational binding, centrifugal repulsion, magnetic field induced by rotating electric field and therefore magnetic dipole-dipole interactions.

How does neutron star play a role in the induced gravitational collapse GRBs.

Wang, Yu (ICRANet)

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Stiffer EoS for compact star with new scaling law

Lee, Jaehyun (Hanyang University)

- "The observation of a 2-solar mass neutron star(PSR J1614-2230)[1] seems to indicate that the equation of state(EoS) for compact stars needs to be sufficiently stiffer to accommodate the mass larger than 1.5-solar mass. We discuss the physical properties of new stiffer EoS, which has been proposed recently using a new scaling law(BLPR) in medium[2,3]. The mass and radius of compact star are calculated under the condition of weak equilibrium of neutron, proton, electron and muon.

Reference : [1] Demorest et al., Nature 467, 1081-1083 (2010)
[2] H.D. Dong, T. Kuo, H.K. Lee, R. Machleidt and M. Rho, arXiv:1207.0429
[3] H.K. Lee and M. Rho, arXiv:1201.6486"

Cosmic ray flux hardening at TeV scale energies: Cream-Pamela Anomaly

Keum, Yong-Yeon (Seoul National University)

Recent measurements of cosmic ray proton and helium spectra show a hardening above a few hundred GeV. This excess is hard to understand in the framework of the conventional models of Galactic cosmic ray production and propagation.

We propose here to explain this anomaly by the presence of local sources (myriad model). Cosmic ray propagation is described as a diffusion process taking place inside a two-zone magnetic halo. We calculate the proton and helium fluxes at the Earth between 50 GeV and 100 TeV. As an improvement over a similar analysis, we consistently derive these fluxes by taking both local and remote sources for which a unique injection rate is assumed into account.

We find cosmic ray propagation parameters compatible with B/C measurements for which the proton and helium spectra agree remarkably with the PAMELA and CREAM measurements over four decades in energy.

Some Exact Solutions of the Einstein-Maxwell Equations

Siddiqui, Azad Akhter (National University of Sciences and Technology)

Bending of light ray in nontrivial QED vacua.

Kim, Jin Young (Kunsan National University)

- "We consider the propagation of light for a class of nontrivial QED vacua. A gradient for the index of refraction can be made by objects that cause nontrivial QED vacua. We computed the bending angles of light ray in geometric optics formalism and discuss the relevance in astrophysics."

Gravitational and Electromagnetic Radiation Reaction Effects in Curved Spacetime: Point-particle and

Kim, Dong-Hoon (Ewha Womans University)

In curved spacetime a particle interacts with its own field: (A) a point-mass undergoes gravitational radiation reaction and gravitational waves will result from it, (B) a point-charge undergoes electromagnetic radiation reaction and it will perturb electromagnetic waves. We present two examples of these effects: (A) gravitational waves from tidal disruption of a main-sequence star orbiting a massive black hole, (B) perturbation of electromagnetic waves from synchrotron radiation around a black hole. For effective computational implementation, we develop a new method based on (i) a point-particle approximation and (ii) a semi-relativistic approximation: (i) from the notion that Einstein's equations and Maxwell's equations are solved via perturbation, (ii) from the notion that a star/charge's orbital evolution is identified with a geodesic in the background geometry of a black hole.

Stability of Magnetized White Dwarfs

Uribe, Diego Leonardo Caceres (Universita di Roma, La Sapienza)

It has been recently proposed (Das, U. & Mukhopadhyay, B. 2012, 2013) that white dwarfs with huge magnetic fields, 10^{14} - 10^{18} G, might have super-Chandrasekhar masses with a maximum value of 2.58 M_\odot. Here we show that white dwarfs cannot reach such a hypothetical state since they are subjected to instabilities due to inverse-β-decay, pycnonuclear reactions, general relativity, as well as secular and dynamical instabilities, owing to axisymmetric deformations. We briefly discuss the consequences of our analysis for the case of neutron stars.

Nonommutative wormholes in f(R) gravity

Jamil, Mubasher (National University of Sciences and Technology)

This paper discusses several new exact solutions of static wormholes in $f(R)$ gravity with a noncommutative-geometry background, which replaces point-like structures by smeared objects. In the first part of the paper we assume the power-law form $f(R)=aR^n$ and discuss several solutions corresponding to different values of the exponent. The second part of the paper assumes a particular form of the shape function that also yields a viable solution. This investigation generalizes some of our previous work in $f(R)$ gravity, as well as in noncommutative geometry.

Temperature dependence of degenerate neutrino energy density

Lee, Hyung Won (Inje University)

The massive degenerate neutrino could be a major contributor of the total energy budget of the universe. The neutrinos will beahve as a radiation matter with very high temperature at early phase of the universe. However, it may change their behaviour with very low temperature like at the late phase of the universe.

In this article, we want to find out for the possibility of this fermionic behaviour to be interpreted as a dark energy."

The Dark Matter distribution in galaxies: a novel approach

Argüelles, Carlos Raúl (ICRANet (La Sapienza))

- We investigate the distribution of dark matter in galaxies by solving the equations of equilibrium of a self-gravitating system of \emph{bare} massive fermions (inos) at finite temperatures within general relativity. We show that in such a distribution a segregation of physical regimes occurs. In the core, the inos are governed by a quantum degenerate state which, in principle, can reach relativistic regimes only treatable within a general relativistic approach. It follows an almost constant density region where the inos are mildly degenerate. This transition region separates the quantum-mechanical core from the classical Boltzmann regime approached at lower densities in the outermost regions of the galactic halo. New lower limits to the mass of the dark matter fermions are established. For spiral galaxies we obtain m> 0.24 keV/c^2, while the smallest dwarf spheroidal galaxies give the most stringent lower limit, m> 7.5 keV/c^2.

Superheavy dark matter in light of dark radiation

Park, Seong Chan (Sungkyunkwan University)

We propose a testable senario of superheavy dark matter around 10^{12-14} GeV based on renormalizable particle physics model with an extra U(1) gauge symmetry. The model explains the recently observed dark radiation component in CMBR and BBN. Also the model can be tested by collider experiments of the Higgs invisible decay.

Semidegenerate system of fermions as Dark matter

De Oliveira Fraga, Bernardo Machado (Sapienza Università di Roma)

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Dark energy with logarithmic cosmological fluid

Kouwn, Seyen (Sungkyunkwan University)

We propose a dark energy model with a logarithmic cosmological fluid which can result in a very small current value of the dark energy density and avoid the coincidence problem without much fine-tuning. We construct a couple of dynamical models that could realize this dark energy at very low energy in terms of four scalar fields quintessence and discuss the current acceleration of the Universe. Numerical values can be made to be consistent with the accelerating Universe with adjustment of the two parameters of the theory. The potential can be given only in terms of the scale factor, but the explicit form at very low energy can be obtained in terms of the scalar field to yield of the form V(\phi)=\exp(-2\phi)(\frac{4 A}{3}\phi+B). Some discussions and the physical implications of this approach are given.

Image Separation Statistics of SDSS Quasar Lenses: Application to Cosmology and Galaxy Properties

Park, Myeong-Gu & Du-Hwan Han (Kyungpook National University)

Statistical properties of gravitationally lensed QSOs contain information on the whole universe and its evolution as well as the lensing galaxies. Lensing probabilities and image separations in principle can test the cosmological models if the properties of galaxies are sufficiently accurately known, and vice versa. Here, we will use solely the image separation statistics, which doesn't suffer from magnification bias, to test the cosmological model and properties of galaxies. We will discuss what meaningful information can be obtained and how sensitively the conclusions depend on the galaxy properties.

Cosmology with Planck

Pagano, Luca (University of Rome)

Preinflationary scenario in Eddington-inspired Born Infeld gravity

Kim, Hyeong-Chan (Korea National University of Transportation)

- "We investigate a nonsingular initial state of the Universe which leads to inflation naturally.

The model is described by a scalar field with a quadratic potential in Eddington-inspired Born-Infeld gravity.

The curvature of this initial state is given by the mass scale of the scalar field which is much smaller than the Planck scale.

Therefore, in this model, quantum gravity is not necessary in understanding this pre-inflationary stage, no matter how large the energy density becomes.

The initial state in this model evolves eventually to a long inflationary period which is similar to the usual chaotic inflation."

Gravity and dark energy from information loss at horizons

Lee, Jae-Weon (Jungwon University)

It was recently suggested that quantum mechanics and entropic gravity emerge from the loss of phase space information at causal horizons. Dark energy in this formalism is proposed.

Magnetic Vacuum and Electron-Positron Production from Neutron Stars and Magnetars

Kim, Sang Pyo (Kunsan National University)

We introduce the second quantized formalism for QED in background time-dependent electromagnetic fields. The quantum evolution of Landau levels in time-dependent magnetic fields is studied and then applied to the magnetic vacuum. Finally, electron-positron production from neutron stars and magnetars and astrophysical implications are discussed.

Gamma-Ray Bursts as the missing link in stellar evolution

Chardonnet, Pascal (Université de Savoie)

The first stars of the Universe, called Population III stars (Pop III), are rapidly becoming an important subject of investigation from the point of view of theory and observations. The formation of these stars hundreds of millions years after the Big-Bang marks the end of what it is called the ``Dark Age"". Today's telescopes cannot look far enough into the cosmic past, so we don't have direct observations on how the primordial stars were formed. This new window is of paramount importance to astrophysics and cosmology. Population III stars are formed with primordial nucleosynthesis elements, they are responsible for the formation of the first metals in the Universe. Change of chemical composition also affects the Initial Mass Function of stars. The energy scattered in newborn Universe will drastically influence its history. Certainly, the new generation of instruments will give us an opportunity to test theoretical ideas about formation of the first stars.

Among these first generation stars an important role were played buy massive stars. The Jean Mass favors creation of very massive objects during star formation by condensation of nuclear cloud. Numerical simulations predict that Pop III stars could have masses as high as few hundreds solar masses. As these stars evolve, physical conditions in the center lead to the development of specific type of hydrostatic instability through electron-positron pairs creation (pair-instability).

In this presentation, I will re-analyse PISN explosion. I will present results of one-dimensional simulations and analysis of the fate of a star depending on physical conditions. I will also present 2D simulations of PISN explosion based on idea of non-uniform explosion and compare the results with the case of uniform explosion in stellar core. I will explore a new scenario of Gamma-Ray Bursts related to the PISNe and present some interesting consequences.

The space mission of Ultra-Fast Flash Observatory and its physics for early photons from Gamma Ray Bursts

Park, Il Hung (Sungkyunkwan University)

One of the least documented aspects of gamma ray bursts (GRB) is the rise phase of the optical light curve. This question could be address by a series of small space missions called Ultra-Fast Flash Observatory (UFFO). The UFFO is equipped with a fast-response Slewing Mirror Telescope that uses a rapidly moving mirror or mirror array to redirect the optical beam rather than slewing the entire spacecraft to aim the optical instrument at the GRB position. The UFFO will open a completely new frontier in GRB and transient studies by probing the early optical rise of GRBs with sub-second response, for the first time. Its fast response measurements will allow deeper understainding of the burst mechanism and test of potential candidates as a new standard candle. We describe early photon science, our soon-to-be-launched UFFO-pathfinder mission, and our next planned UFFO-100 mission.

GRB 090227B, a genuine short burst, and GRB 090510, a disguised short burst in the highest CircumBurst Medium ever inferred

Muccino, Marco (Dip. di Fisica and ICRA, Sapienza Università di Roma)

Inspecting Radiation Dominant Region in the Gamma-ray Burst (GRB) Afterglows Using the Semi-analytic Relativistic Radiative Transfer Analysis

Cho, Changhyun & Park, Myeong-Gu (Kyungpook National University)
Kwak, Kyujin (Ulsan National Institute of Science and Technology)

Gamma-ray bursts (GRBs) are the most powerful explosion in the universe. This energetic explosion is observed on earth very regularly, approximately one GRB per day. The prompt emission of the GRBs is detected as gamma-ray photons and lasts for only a short period of time (< ~2 seconds for short GRBs and tens to hundreds seconds for long GRBs). Usually, the prompt emission is accompanied by longer wavelength emission (X-ray to radio) known as afterglows. The afterglows are explained via the interaction between relativistic flows from progenitors and material surrounding the progenitors. For both the prompt emission and afterglows, synchrotron radiation has been proposed as dominant emission mechanism. For the afterglows, synchrotron radiation is produced in the shocked material that forms from the collision of the relativistic flow with the ambient gas. We use a relativistic hydrodynamic simulation and a semi-analytic relativistic radiative transfer analysis in order to find how relativistic effects such as relativistic beaming and Doppler shift can affect the observed synchrotron radiation of the afterglows. For this task, we use the relativistic Riemann solutions to model the afterglows and calculate the radiation energy and momentum by using relativistic radiative transfer code on the synchrotron emission from the modeled afterglow region.

Wormholes and Phantom field

Kang, Yuri (Ewha Womans University)

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UHECR and galactic and intergalactic magnetic fields

Kim, Hang Bae (Hanyang University)

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Physics of relativisitc force-free MHD turbulence

Cho, Jungyeon (Chungnam National University)

If the magnetic energy density is much larger than that of matter, we can show that such a medium is force-free and we need relativity to describe it. In this talk I'll talk about scaling relations of relativistic force-free MHD turbulence. Recent simulations show that there is a lot of similarity between ordinary MHD turbulence and relativistic force-free MHD turbulence. I will first compare scaling relations of both types of turbulence. Then I will discuss similarities and differences of imbalanced turbulence.

KVN Observations of Class I Methanol Masers produced by Outflows from Dis-fed Massive Protostars in

Kim, Soon-Wook (Korea Astronomy and Space Science Institute)
Kim, Jeong-Sook (Korea Astronomy and Space Science Institute & Kyunghee University)

Star formation is one of the most active research fields in modern astrophysics. Accretion process plays a crucial role in star formation. Once the sub-Keplerian or Keplerain accretion disk forms, protostars release the excess of angular momentum in the form of outflows. The interaction of such outflows with the stellar environments results in shocks, which are believed to produce a variety of masers observed in the millimeter wavelengths. Methanol masers have been relatively poorly studied than other maser lines such as hydroxyl, silicon monoxide and water masers in star-forming regions. As a result, short and long-term variability of methanol masers are poorly known. The variability in maser features is important to probe the very early stage of protostellar evolution.

For example, we recently show that the long-term variability of water masers in the star-forming region W75N indicates the evolutionary status of accretion disks and outflows in protostars. We present a preliminary result of time-varying features of methanol masers in star-forming regions DR21/W75N, and discuss the physical implication.

KVN Polarization Observation of 2013 Small flares in Black Hole Microquasar Cygnus X-3 during MOGABA

Kim, Jeong-Sook (Korea Astronomy and Space Science Institute & Kyunghee University)
Kim, Soon-Wook (Korea Astronomy and Space Science Institute)

Microquasars are jet-ejecting X-ray binary stars. Unlike canonical X-ray binaries with the recurrent time scales in flares of a few years or more, Cygnus X-3 has revealed frequently flaring activity. In flares, microquasars are expected to display polarization in the optical and radio wavelengths, similar to those in quasars. The radio polarization is thought to be a powerful probe to explore the propagation of relativistic jets launched from accretion disks around black holes. However, only a few polarization observations have been reported. As a part of the MOGABA/iMOGABA project for the millimeter monitoring of quasars and active galactic nuclei, we have carried out the radio polarization observations of Cygnus x-3 with Korea Very Long Baseline Interferometry Network (KVN).We discuss a possible detection of an unusual polarization during small flares in 2013.

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Wu, Yuanbin	University of Rome La Sapienza	wuyb@icranet.org
Xue, Shesheng	ICRANet/University of Rome	xue@icra.it
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Yoon, Jong Hyuk	Konkuk University	yoonjh_5@naver.com
Yu, Hyein	Ewha Womans University	yuhyein@gmail.com

Room Assignment

Name	M/F	Arrival	Departure	Accommodations
Argüelles, Carlos Raúl	M	2013-07-14	2013-07-19	Garden Twin 2
Bang, Taeyang	M	2013-07-14	2013-07-19	Casaville Twin 2
Boshkayev, Kuantay	M	2013-07-14	2013-07-19	Garden Double 9
Chardonnet, Pascal	M	2013-07-15	2013-07-20	Garden Twin 6
Cho, Changhyun	M	2013-07-14	2013-07-19	Casaville Twin 2
de Carvalho, Sheyse Martins	F	2013-07-14	2013-07-19	Garden Twin 1
Fraga, Bernardo Machado de Oliveira	M	2013-07-14	2013-07-19	Garden Twin 2
Gong, Jinn-Ouk	M	2013-07-14	2013-07-19	Casaville Double 5
Han, Du-Hwan	M	2013-07-14	2013-07-19	Casaville Twin 3
Hussain, Ibrar	M	2013-07-13	2013-07-22	Garden Double 7
Hyun, Hwasu	F	2013-07-15	2013-07-19	Casaville Twin 1
Isayev, Alexander A.	M	2013-07-13	2013-07-20	Casaville Double 1
Jamil, Mubasher	M	2013-07-14	2013-07-19	Garden Double 5
Keum, Yong-Yeon	M	2013-07-16	2013-07-18	Casaville Double 2
Kim, Chunglee	F	2013-07-15	2013-07-18	Casaville Double 6
Kim, Hongsu	M	2013-07-14	2013-07-18	Casaville Double 7
Kim, JeongCho	F	2013-07-15	2013-07-19	Casaville Twin 1
Kim, Jin Young	M	2013-07-15	2013-07-18	Casaville Double 3
Kim, Kyoungyee	F	2013-07-14	2013-07-19	Casaville Double 4
Lee, Hyung Won	M	2013-07-13	2013-07-20	Garden Double 10
Ludwig, Benjamin H. M.	M	2013-07-14	2013-07-19	Garden Twin 3
Muccino, Marco	M	2013-07-14	2013-07-19	Garden Twin 3
Pagano, Luca	M	2013-07-14	2013-07-19	Garden Double 4
Park, Chan	M	2013-07-14	2013-07-19	Casaville Twin 3
Park, Myeong-Gu	M	2013-07-14	2013-07-19	Garden Double 8
Penacchioni, Ana	F	2013-07-14	2013-07-19	Garden Twin 1
Pisani, Giovanni Battista	M	2013-07-14	2013-07-19	Garden Twin 4
Rueda, Jorge	M	2013-07-14	2013-07-19	Garden Double 3
Ruffini, Remo	M	2013-07-14	2013-07-19	Garden Double 1
Siddiqui, Azad	M	2013-07-14	2013-07-20	Garden Double 6
Uribe, Diego Leonardo	M	2013-07-14	2013-07-19	Garden Twin 4

Caceres				
Wang, Yu	M	2013-07-14	2013-07-19	Garden Twin 5
Wu, Yuanbin	M	2013-07-14	2013-07-19	Garden Twin 5
Xue, SheSheng	M	2013-07-13	2013-07-19	Garden Double 2

Reminder

- *Registration Fee*

  The registration fee is 100,000 KRW (50,000 KRW for students) for preregistered participants, which is to be paid at the on-site registration desk by credit card. The on-site registration fee is 150,000 KRW (100,000 KRW for students). Participants who had been granted for the waiver of the registration fee do not need to pay.

- *Banquet*

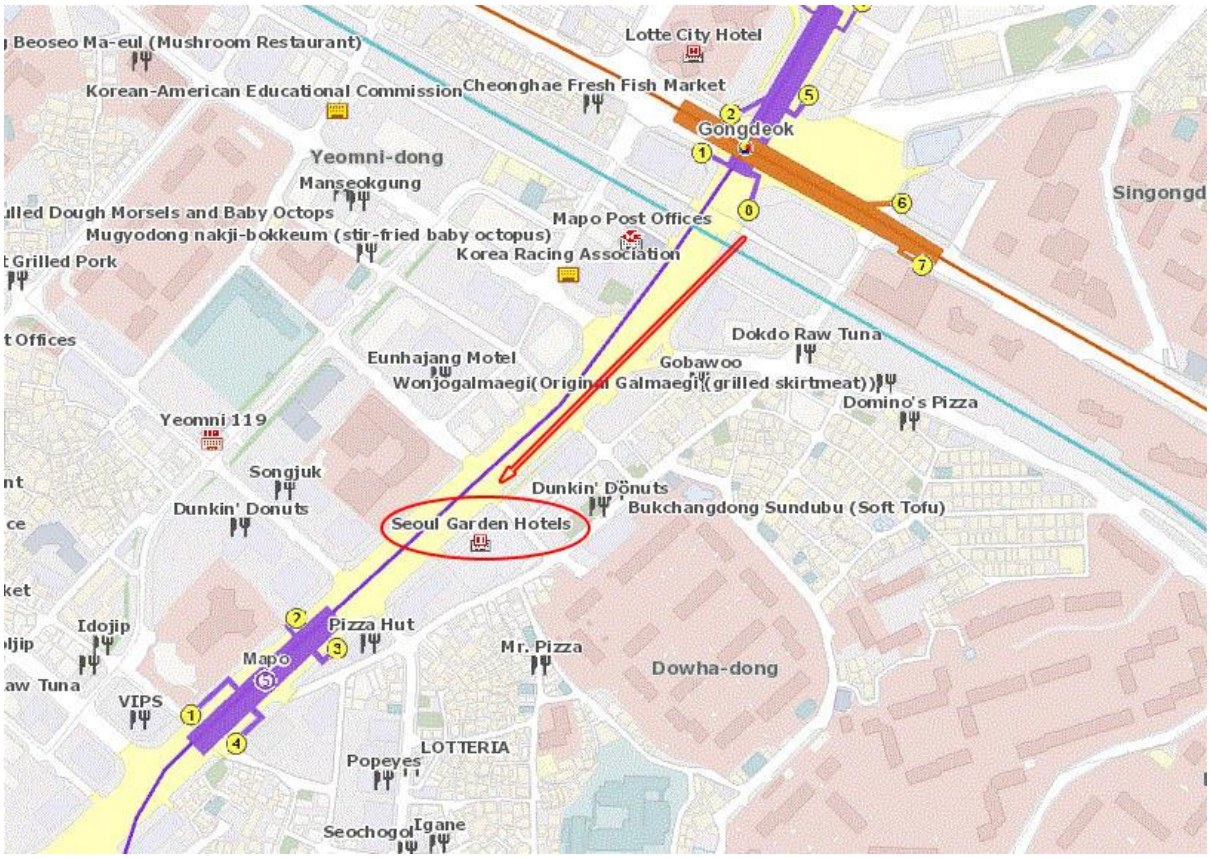
  16 July (Tue) 18:00-20:00 Education Building B, BB152

Meals

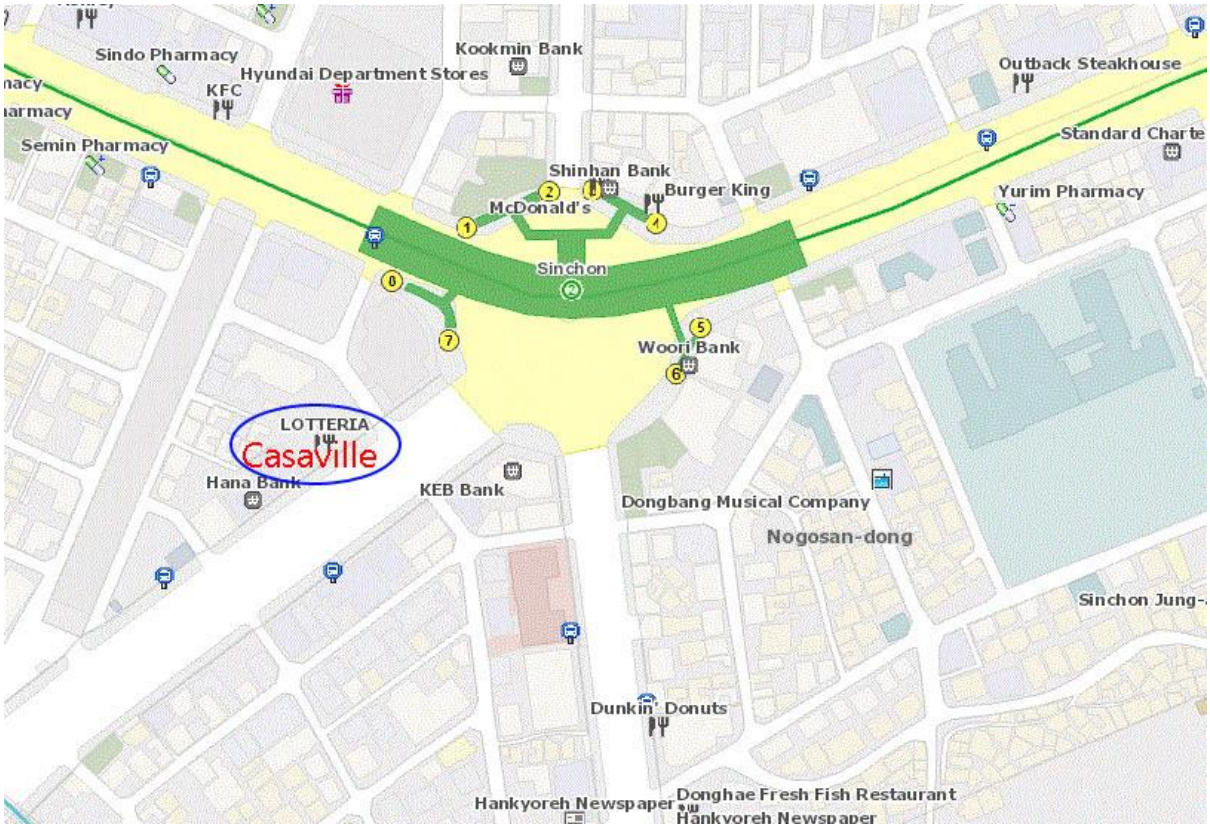
- Lunch will provided to all registered participants from 15 to 18 July in cafeteria within the university.

Hotel Information

- Best Western Premier Seoul Garden Hotel
  - Hotel is located 200m from Mapo Subway Station (Line 5, Exit 3)
  - Hotel is located 350m from Gongdeok Station (Line 5/Line 6/Airport Railroad-Commuter Line, Exit 8).



- CasaVille Shinchon
  - Hotel is located 70m from Shinchon Subway Station (Line 2, Exit 7)



Useful Information

- **Phone Numbers**

  Myeong-Gu Park: 010-4456-8430
  Hyung Won Lee: 010-6277-1012
  Emergency: 119

  Best Western Premier Seoul Garden Hotel: 02-717-9441
  CasaVille Shinchon: 02-6220-4000

- **Air Lines Phone Numbers**

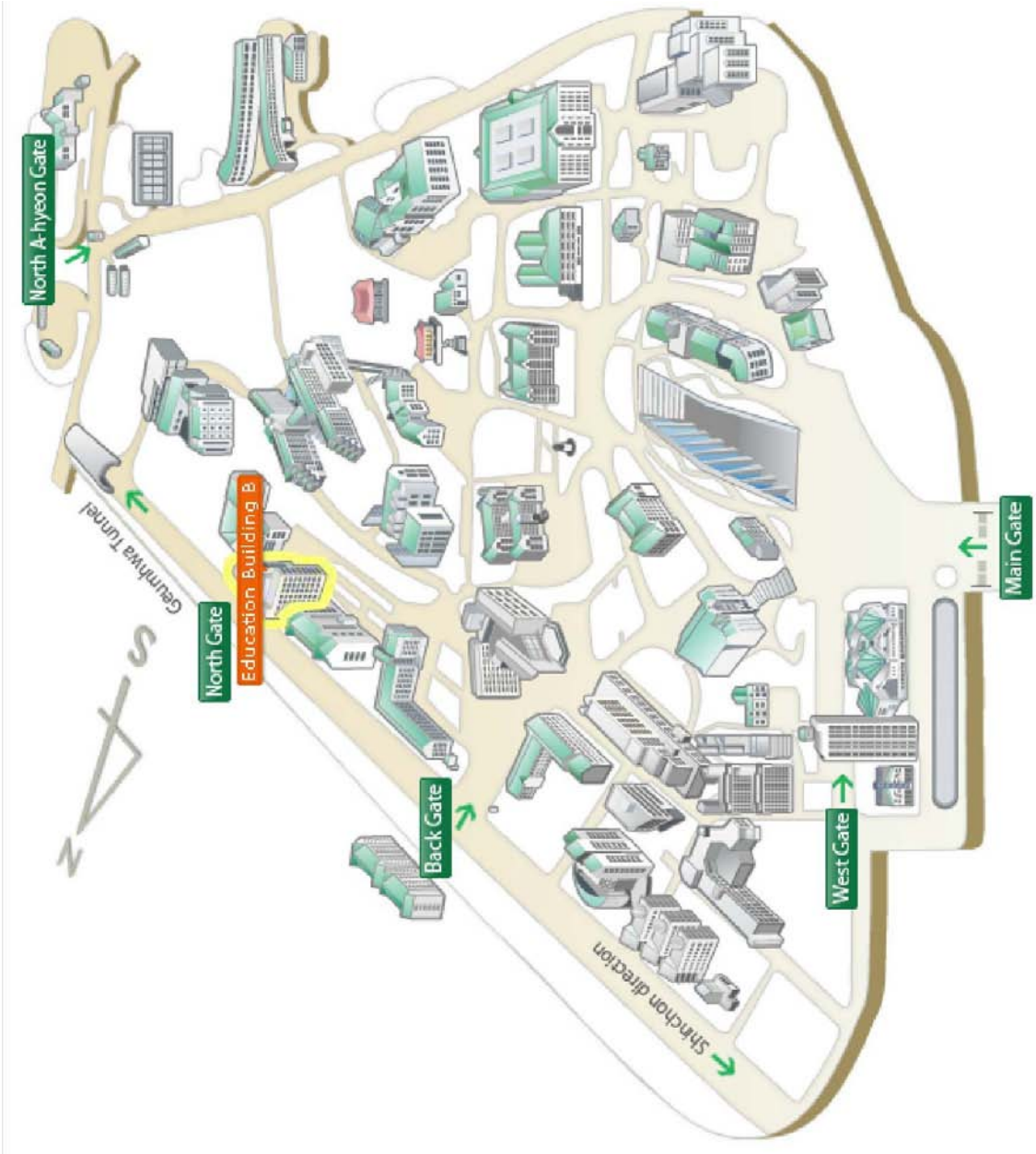
  Korean Air: Tel. 1588-2001
  Asiana Airline: Tel. 1588-8000

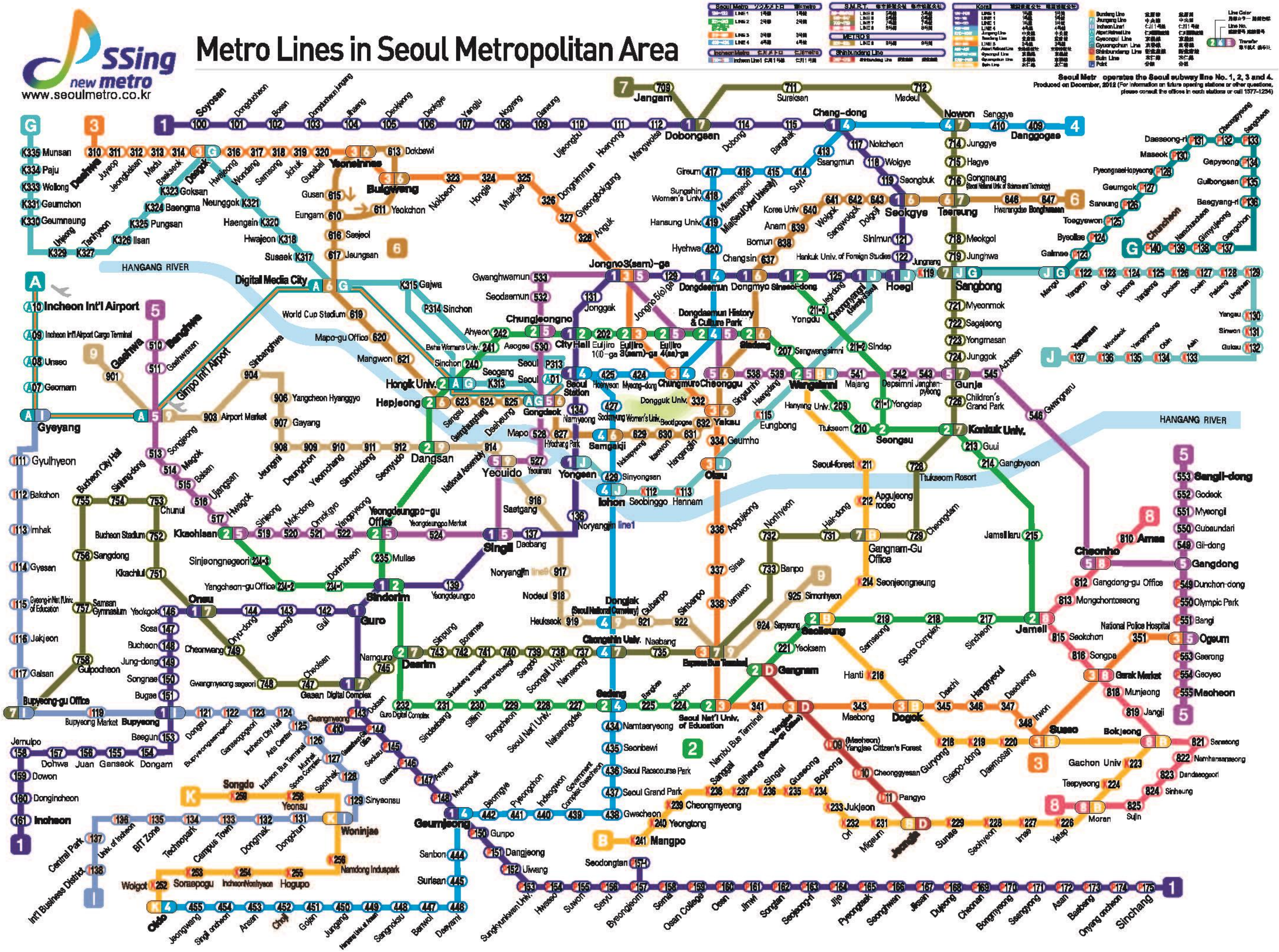
- **Telephone**

  70 KRW per 180 sec for local calls on pay-phone. You can purchase KT Telephone Card for long-distance and international calls.

Maps

Ewha Womans University Map




Metro Lines in Seoul Metropolitan Area
SSing new metro
www.seoulmetro.co.kr
Seoul Metro operates the Seoul subway line No. 1, 2, 3 and 4.
Produced on December, 2012 (For information on future opening stations or other questions, please consult the offices in each stations or call 1577-1234)
HANGANG RIVER
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IRAP PH.D. ERASMUS MUNDUS SCHOOL - SEPTEMBER 2013

[Back]

IRAP Ph.D. Erasmus Mundus school
September 2nd - 20st, 2013

Program **Location**

	1th Week					2nd Week					3 rd Week				
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
	02-set	**03-set**	**04-set**	**05-set**	**06-set**	**09-set**	**10-set**	**11-set**	**12-set**	**13-set**	**16-set**	**17-set**	**18-set**	**19-set**	**20-set**
9:00-10:00		**Bini**	**Penacchioni**	**Muccino**	**Fernanda**	**Vereshchagin**	**Vereschaghin**	**Vereschaghin**	**Baranov**		**Gomes**	**Galstyan**	**Filina**		
10:00-11:00	**Arrival**	**Bini**	**Muccino**	**Kefexhiu**	**Disha**	**Belinski**		**Baranov**	**Amati**	**Orlandini**	**Lanz**	**Lanz**			
Break		**Break**	**Break**	**Break**		**Break**	**Break**	**Break**	**Break**	**Break**	**Break**	**Break**	**Break**	**Break**	**Break**
11:30-12:30	**in**	**Izzo**	**Signature de l'accord IHES ICRANet**	**Penacchioni**	**Zeinab**	**Xue**	**Xue**	**Mavromatos**	**Orlandini**	**Amati**		**Ryde**			
12:30-13:30	**Nice**			**Enderli**	**Hendrik**	**Vereshchagin**	**Vereshchagin**	**Belinski**			**Rosquist**	**Rosquist**	**Zaninoni**		
Lunch Break		Lunch Break				Lunch Break					Lunch Break				
14:00-15:00	**Ruffini/Izzo**	**Izzo**	**Bourguignon**	**Gregoris**		**Xue**			**Carlos**		**Homann**				
15:00-16:00	**Kefexhiu**	**Penacchioni**							**Husne**		**Ryde**				
15:00-16:00	**Bini**														

Speakers:

Ryde Radiation processes in GRBs
Rosquist Discrete cosmology and the averaging problem in cosmology
Lanz Radiative Transfer and Stellar Atmospheres
Lanz Massive Stars in Low Metallicity Environments

Amati Cosmology with GRBs: status, reliability and perspectives
Amati Next generation of GRB experiments: open issues
Natoli
Rosati
Frontera Introduction to experimental X-/gamma-ray astronomy

Bianco
Xue
Vereschagin

Bini General Relativity, Exact Solutions and Symbolic computation using Mapple
General Relarivity : Observers Families and the measurment process
Ruffini SN, GRB, NZ and BHs
Izzo Today's news on GRBs

Giommi
Tavani
Della Valle

Kleinert

Mavromatos On neutrinos, dark matter and matter-antimatter asymmetry

Kunz
Lamerzen

Aharonian
Kefexhiu About nuclear reactions at T>1 MeV and applications

Battiston AMS experiment ??