



KU, Dhulikhel: July 19 – 31, 2010

A REPORT ON CIMPA SCHOOL 2010

Introduction: The theory of numbers has always occupied a unique position in mathematics. Number theory is one of the most important branches and a very fertile research field. One area that is particularly popular these days is "Cryptography" and this is the art of making and breaking secret codes and so quite useful for security management. Due to recent computer applications and advanced technological developments, these courses cover a wide range of research activities worldwide. In the present scientific world, the extensive use of computers, its security system and their dependency on mathematics (mainly on Number Theory and its applications) are interdisciplinary and have become a great significant. Therefore, being aware of these courses recognizing its importance and with the objective to provide introductory as well as advanced training in Number Theory and Cryptography to graduate, M.Phil. Students and young researchers from Nepal and other countries in the same area, International Centre for Pure and Applied Mathematics (**CIMPA**), France, in collaboration with Nepal Mathematical Society (**NMS**) and Kathmandu University (**KU**) successfully organized **THIRTEEN DAYS CIMPA-UNESCO-NEPAL Research School** from *July 19 – 31, 2010* at Kathmandu University, Dhulikhel. It is the first ever International School of Mathematics in Nepal and therefore, Nepal has become third country to organize this event among eight south Asian countries after India and Pakistan.

History: The concept of organizing CIMPA School was planned in December 2005 when Dr. Francesco Pappalardi visited Kathmandu University. By the end of July 2007, the proposal was submitted to CIMPA with **Christian Mauduit** (Universite de la Mediterranee, Luminy, FRANCE), **Francesco Pappalardi** (Universita Roma Tre, ITALY), **Igor Shparlinski** (Macquarie University, Sydney, AUSTRALIA) and **Kanhaiya Jha** (Kathmandu University, Dhulikhel, NEPAL) as four organizing committee members. Also, Prof. Dr. Michel Waldschmidt, a regional scientific coordinator

of India-South Asia from CIMPA, visited Kathmandu University in 2008 and his role and cooperation for the approval of this event is remarkable. The program was formally approved in 2008. In 2009, this school was approved as a satellite school of International Congress of Mathematicians (**ICM**) which is going to be held at Hyderabad from **August 19 – 27, 2010**. As **ICM** is the biggest international event of mathematics in the world, so-called the mahakumbha (like Olympic) of mathematics, so it is fortunate for this school to become a remarkable event in the history of mathematical community. Kathmandu University in collaboration with Nepal Mathematical Society organized the first ever National School of Mathematics (residential) on "**Number Theory and Cryptography**" from **December 26, 2009 – January 05, 2010**. The objective of this national school was to encourage and upgrade Nepalese scholars and make them familiar with the CIMPA School. The **NSNTC 2009** was the preparatory for the CIMPA School and two speakers were Dr. Kalyan Chakraborty from HRI, India and Dr. Francesco Pappalardi.

With the historical approvals from both CIMPA and ICM, a national advisory committee as well as national organizing committee (**NOC**) was formed which are as follows:

NATIONAL ADVISORY COMMITTEE

Prof. Dr. S. R. Kafle, Vice-chancellor, Nepal Academy of Science and Technology (**NAST**), Nepal.
 The Chairperson, University Grants Commission (**UGC**), Bhaktapur, Nepal.
 Prof. Dr. B. M. Tuladhar, The President, Nepal Mathematical Society, Nepal.
 Prof. Dr. G.B. Thapa, Head, Central Dept. of Mathematics (**CDM**), Tribhuvan University, Nepal.
 Prof. Dr. S.K. Mishra, Institute of Engineering (**IOE**), TU, Pulchowk, Lalitpur, Nepal.
 Prof. Dr. P. R. Adhikary, Examination Controller, Kathmandu University (**KU**), Nepal.
 Dr. Colin Kaiser, Director, UNESCO Office, Kathmandu, Nepal.

NATIONAL ORGANIZING COMMITTEE (NOC), NEPAL

Patron: Prof. Dr. Suresh Raj Sharma, Vice-Chancellor, Kathmandu University, Nepal.
 President: Prof. Dr. Panna Thapa, Dean, School of Science (**SOSc**), **KU**, Dhulikhel, Nepal.
 Vice-president: Dr. Deepak Subedi, Head, Department of Natural Science, **SOSc**, **KU**, Dhulikhel.
 Coordinator: **Dr. Kanhaiya Jha**, Department of Natural Science (**Mathematics**),
 School of Science, Kathmandu University, Dhulikhel, Kavre.
 Members: Dr. Chet Raj Bhatta, Central Dept. of Mathematics, Tribhuvan University, Kathmandu
 Mr. Rabindra Kayastha, **SoSc**, **Kathmandu University**, Dhulikhel, Kavre
 Mr. Purshottam Kharel, **SOE**, **Kathmandu University**, Dhulikhel, Kavre
 Mr. Dinesh Panthi, Balmikee Campus, **Nepal Sanskrit University**, Kathmandu
 Mr. Pradeep Bahadur Thapa, **CITE**, **Purbanchal University**, Kathmandu

Moreover, seven members working subcommittee (three from **NOC**) was formed to work in close coordination with the local coordinator since November 2009 with members Purushottam Kharel, Pradeep Bahadur Thapa, Dinesh Panthi, Umesh Rajopadhyaya, Kanchha Bhai Manandhar, Shams-ur-rahman, and Meena Kumari Jha

Program: The school was inaugurated on **July 19, 2010**, MONDAY, by the chief guest honorable vice-chancellor of KU Prof. Dr. Suresh Raj Sharma with lighting the lamp and expressing the importance of mathematics and best wishes for this event. Also, Prof. Dr. Bhadra Man Tuladhar, the president of Nepal Mathematical Society and the registrar of KU addressed with the role of NMS for the development of mathematics in Nepal. Prof. Dr. Panna Thapa, the dean of School of Science, gave the welcome speech, Dr. Francesco Pappalardi, International coordinator of this school addressed with the highlights on the objective of this school, and Prof. Dr. Michel Waldschmidt, the CIMPA regional scientific officer highlighted with the role of CIMPA for mathematical events. Finally, Dr. Kanhaiya Jha, the local coordinator of CIMPA School & program coordinator of inaugural ceremony, expressed thanks to all.



(Prof. Michel Waldschmidt lightning the lamp)

(Address by VC Prof. S.R. Sharma of KU)

The school was divided into TWO Parts: Part A as an elementary course and Part B as advanced courses included lecturers, *mathematica laboratory* and tutorial to make this school more interactive and fruitful for participants. This school consisted of ELEVEN renown speakers from SEVEN countries viz France (03), Italy (03), Spain(01), India(01), Canada(01), Japan(01) and Nepal(01). There

were TWENTY ONE foreign participants from NINE countries like from Pakistan (06), India (06), Sri-Lanka(01), Thailand(03), Bangladesh(01), Czech Republic (02), Italy(01), Spain (01), and TWENTY SIX local Nepalese participants from four major Nepalese universities Kathmandu University, Tribhuvan University, Nepal Sanskrit University and Purbanchal University. In total, this school includes **58** members (11 speakers and 47 participants) with additional organizing committee members, which seem to be a relatively huge mathematical gathering in the history CIMPA Schools.



(Lecture by Dr. Francesco Pappalardi, Italy)



(Lecture by Shigeru Kanemitsu, Japan)

On **July 23, 2010**, FRIDAY, all foreign participants including the local organizing committee members visited the Office of Vice-President of Nepal, Nepal Government. After the arrival of Vice-President in the main hall and after self-introduction from each delegate, right honorable Vice-President of Nepal **Mr. Parmanand Jha** personally and on be-half of Nepal Government expressed his warm welcome to all members and congratulated CIMPA for organizing this event in our beautiful Himalayas country. He also expressed his best wishes for the successful organization of this international school and hoped for supporting more collaborative mathematical events in Nepal in the near future to upgrade and promote the educational system of Nepal. This visit was well-organized by the office of Vice-President and fortunately it has become a big historical moment for all mathematicians being formally honored by Nepal Government. Then, after joining high-tea, there was a one-hour tour to Thamel, an important place of all tourists in Kathmandu. The organizing committee extended hearty thanks to all members mainly the secretary Dr Braja Kishore Prasad Shaha of this office of Nepal Government for providing memorable opportunity, for their kind cooperation and hospitality.



(Speakers & Participants with right honorable Vice-President of Nepal)

On **July 27, 2010, TUESDAY**, there was a ONE Day excursion tour for international participants to Kathmandu and Bhaktapur. Participants as well as speakers visited Kathmandu Darbar (Palace) Square in the morning and then to Bhatapur Darbar Square in the afternoon, followed by HIGH-TEA at Khwopa Engineering College, a reputed college in Nepal run by Bhaktapur Minicipality. Thanks to Mr. Raju Bhai Tyata and Mrs Rajani Shrestha and their colleagues for this warm welcome and hospitality.



(Tour to Kathmandu)



(Friendly football match)

On **July 28, 2010**, WEDNESDAY, there was a friendly football game at KU football stadium. Francesco Pappalardi was the captain of the team including foreign participants and speakers whereas Kanhaiya Jha was the captain of the team including Nepalese participants. The game was so exciting and very enthusiastic for all participants. Finally, the local team won by one goal (1- 0).

On **July 30, 2010**, FRIDAY, there was the closing ceremony at CV Raman Auditorium hall and the president of NMS Prof. Dr. Bhadra Man Tuladhar was the chief guest of this ceremony. It is honor for the CIMPA School organizer to welcome **Jean Romnecianu**, the honorable consulate of French Embassy in Nepal in this program at Kathmandu University, Dhulikhel and to share his view with participants. He said that the biggest problem of Nepal is the brain drain of intellectuals. There was welcome address by Dr. Kanhaiya Jha, followed by remarks from Prof. Dr. Panna Thapa, Dr. Francesco Pappalardi, Prof. Dr. Michel Waldschmidt, from participants (eight) and Prof. Dr. B.M. Tuladhar about their views and experiences on this CIMPA School. There was mementos and certificates distribution to speakers, participants and dignitaries, including GROUP Photo. Finally, Dr. Kanhaiya Jha gave the vote of thanks to all related to this event.



(Address by honorable French Consulate)



(Christian Mauduit receiving mementos)

Moreover, there was an interaction program with eight distinct foreign participants with the reporter Mr. Ishwor Chandra Mainali of paper "Madhya Marga", which was published on July 31, 2010, Sunday issue.



(Press meets with foreign participants)



(Group Photo at KU main building)

The collaborators of this CIMPA School were

International Centre of Pure and Applies Mathematics (**CIMPA**), France;
 United Nations Educational Scientific and Cultural Organizations (**UNESCO**),
 Ministerio de Ciencia e Innovacion (**MICINN**), Spain;
 Universita' Roma Tre, Italy; Kathmandu University, Nepal;
 Nepal Mathematical Society (**NMS**);
 International Centre of Theoretical Physics (**ICTP**), Trieste;
 International Mathematical Union (**IMU**);
 Institut de Mathematiques de Luminy, Marseille, France;
 National Board of Higher Mathematics (**NBHM**), India;
 The French Embassy in Nepal, Kathmandu.

Also, the local sponsors of this CIMPA School were:

The Ministry of Science and Technology (**MOST**), Nepal;
 University Grants Commission (**UGC**), Nepal;
 Nepal Academy of Science and Technology (**NAST**);
 Kathmandu Engineering College; Chelsea International Academy, Kathmandu;
 Popular Education Foundation (**PEF**), Kathmandu; Siddhartha College, Kavre;
 Mathematics Teacher's Society, Kavre.

Other local sectors involved in this school were Mirable Resort Hotel for accommodation of speakers and participants, Kathmandu University International Centre (**KUIC**) for accommodation of foreign participants, KU Guest House for local Nepalese participants, Chandeshwori Catering Service for food, Arniko Yatayat for Travelling, Pragati Griha for stationary, Bhimeshwor Udyog for Bag, Banepa Art Studio for Photos, Madhya Marga for Media, Award Maker for mementos and flex, Stamp World for certificates, Antic Computer Trading for computer goods.

The local organizing committee of this first ever International School **CIMPA School 2010** express its gratitude and thanks to all collaborators, sponsors, speakers, participants and their institutes, all members involved in this school for their kind cooperation and valuable suggestions. The School also thanks all teaching and non-teaching staffs of KU, media persons and well-wishers.

Recommendations:

CIMPA must give priority and help regularly to organize such schools in Nepal on other interesting and emerging topics of mathematics to encourage and motivate young mathematics teachers for the developments of mathematical activities and to facilitate the promotion of the research activities.

STATUS OF SPEAKERS AND PARTICIPANTS

Summary of the Speakers

<i>S.No.</i>	<i>Country</i>	<i>Number</i>	<i>Male</i>	<i>Female</i>
01	France	03	03	-
02	Italy	03	03	-
03	India	01	01	-
04	Japan	01	01	-
05	Canada	01	01	-
06	Spain	01	01	-
07	Nepal	01	01	-
	TOTAL	11	11	-

Summary of Participants

<i>S.No.</i>	<i>Country</i>	<i>Number</i>	<i>Male</i>	<i>Female</i>
01	India	06	06	-
02	Pakistan	06	06	-
03	Srilanka	01	-	01
04	Thailand	03	01	02
05	Bangladesh	01	01	-
06	Czech Republic	02	01	01
07	Spain	01	01	-
08	Italy	01	01	-
09	Nepal	26	24	03
	TOTAL	47	40	07