

MHRD Scheme on Global Initiative on Academic Network (GIAN) A short course on:
Superoscillations and Weak Measurement

Date: 5 – 12 December 2016

Venue: Lecture Hall Complex, IISER Kolkata, Mohnapur – 741246, West Bengal, India

Instructors: Sir Michael Victor Berry (FRS); Prof. P. K. Panigrahi (IISER Kolkata)

| Course Schedule | | | | |
|-----------------|---|---|-------|-------------------------|
| Date | Time | Topic | Venue | Instructor |
| 4 Dec | <i>Registration of Participants (6:00 PM to 7:00 PM)</i> | | 110 | |
| 5 Dec | 09:30 – 09:45 | Inauguration | G06 | Director, IISER Kolkata |
| | 09:50 – 11:00 | Introduction & Mathematical Preliminaries | G06 | Prof. P.K. Panigrahi |
| | 11:30 – 12:30 | Fourier Transform in Optics I | 110 | Dr. S. Das |
| | 12:30 – 13:30 | Fourier Transform in Optics II | 110 | Dr. S. Das |
| | 13:30- 14:30 | Lunch | | |
| | 14:30 – 15:30 | Lecture on Superoscillations & Weak Measurement | 110 | Prof. M. Berry |
| | 15:30 – 16:00 | High Tea | | |
| | 16:00 – 17:00 | Discussion with Prof. Berry | 110 | Prof. M. Berry |
| 6 Dec | 10:00 – 11:00 | Fourier Transform in Optics III | 110 | Dr. S. Das |
| | 11:00 – 11:30 | <i>Discussions and Tea Break</i> | | |
| | 11:30 – 12:30 | Phase Space and Wigner Distribution | 110 | Prof. P. K. Panigrahi |
| | 12:30 – 13:30 | <i>Tutorial</i> | 110 | Dr. P. Mehta |
| | 13:30 – 14:30 | <i>Lunch</i> | | |
| | 14:30- 15:30 | Lecture on Superoscillations & Weak Measurement | G06 | Prof. M. Berry |
| | 15:30 – 16:00 | <i>Tea Break</i> | | |
| | 16:00-17:00 | Interference in Phase Space | 110 | Prof. P. K. Panigrahi |
| 7 Dec | 10:00 – 11:00 | Lecture on Superoscillations & Weak Measurement | G06 | Prof. M. Berry |
| | 11:00 – 11:30 | <i>Tea Break</i> | | |
| | 11:30 – 12:30 | Lecture on Wigner Function in Optics | 110 | Prof. J. Banerjee |
| | 12:30 – 13:30 | <i>Tutorial</i> | 110 | Dr. P. Mehta |
| | 13:30 -14:30 | <i>Lunch</i> | | |
| | 14:30 -16:00 | <i>Numerical lab. Session (Wave packet Dynamics, Wigner Function, Fractional Revival, Weak Measurement and sub- Planck Structure)</i> | CC | Prof. J. Banerjee |
| | 16:00-16:15 | <i>Tea Break</i> | | |
| | 16:15-17:30 | <i>Numerical lab session</i> | CC | Prof. J. Banerjee |
| 8 Dec | 10:00 – 11:00 | Lecture on Superoscillations & Weak Measurement | G06 | Prof. M. Berry |

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| | 11:00 – 11:30 | <i>Tea Break and Discussions</i> | | |
| | 11:30 – 12:30 | <i>Tutorial</i> | 110 | Prof. P. Shukla |
| | 12:30 – 13:30 | <i>Tutorial</i> | 110 | Dr. R. Singh |
| | 13:30 – 14:30 | <i>Lunch</i> | | |
| | 14:30 – 15:30 | <i>Tutorial</i> | 110 | Prof. P. K. Panigrahi |
| | 15:30- 16:00 | <i>tea break</i> | | |
| | 16:00-17:00 | Discussion with Prof. Berry and other Resource Persons | 110 | |
| 9 Dec | 10:00 – 11:00 | Lecture on Superoscillations & Weak Measurement | G06 | Prof. M. Berry |
| | 11:00 – 11:30 | <i>Tea Break and Discussions</i> | | |
| | 11:30 – 12:30 | <i>Wigner Function, sub-Planck Structure and Weak Measurement</i> | 110 | Prof. P.K. Panigrahi |
| | 12:30-13:30 | <i>Tutorial</i> | 110 | Dr. R. Singh |
| | 13:30-14:30 | <i>Lunch</i> | | |
| | 14:30-17:00 | <i>Laboratory Demonstration of Weak Measurement</i> | RC-I | Dr. N. Ghosh |
| 10 Dec | 10:00 – 11:00 | Weak Measurement and Neutrino Physics | 110 | Prof. P. Shukla |
| | 11:00-11:30 | <i>Tea Break</i> | | |
| | 11:30 – 12:30 | <i>Wave Packet Evolution-I</i> | 110 | Dr. A. Tiwari |
| | 12:30- 13:30 | <i>Tutorial</i> | 110 | Dr. P. Mehta |
| | 13:30-14:30 | <i>Lunch</i> | | |
| | 14:30-15:30 | <i>Pointer Supershifts and Superoscillations in Weak Measurements-I</i> | 110 | Prof. P. Shukla |
| | 15:30-16:00 | <i>Tea Break</i> | | |
| | 16:00-17:00 | <i>Wave Packet Evolution-II</i> | 110 | Dr. A. Tiwari |
| 11 Dec | 10:00 – 11:00 | Discussions with Prof. Berry | G06 | Prof. M. Berry |
| | 11:00 – 11:30 | <i>Tea Break</i> | | |
| | 11:30 – 12:30 | <i>Pointer Supershifts and Superoscillations in Weak Measurements-II</i> | 110 | Prof. P. Shukla |
| | 12:30 – 13:30 | <i>Laboratory Demonstration of Weak Measurement</i> | RC-I | Dr. N. Ghosh |
| | 13:30-14:30 | <i>Lunch</i> | | |
| | 14:30-15:30 | <i>Tutorial and Discussions</i> | 110 | Dr. R. Singh |
| | 15:30-17:00 | <i>Tutorial on Berry Phase</i> | 110 | Dr. S. Das |
| 12 Dec | 10:00 – 11:00 | Experimental Status of Weak Measurement | 110 | Prof. P.K. Panigrahi & dr. N. Ghosh |
| | 11:00 – 11:30 | <i>Tea Break</i> | | |
| | 11:30-13:30 | <i>Review Examination</i> | | |
| | 13:30-14:30 | <i>Lunch</i> | | |
| | 14:30 – 17:00 | Students' Feedback, Panel Discussions & Group Photograph | G06 | Prof. M. Berry & Other Resource Persons |