



**MEMORANDUM OF UNDERSTANDING
BETWEEN**

Indian Institute of Science Education and Research, Pune

AND

**National Centre for Radio Astrophysics,
Tata Institute of Fundamental Research, Pune**

Indian Institute of Science Education and Research (having the address at 1st Floor, Central Tower, Sai Trinity Building, Sutarwadi, Pashan, Pune 411 021, India) (hereinafter referred to as IISER).

AND

National Centre for Radio Astrophysics, Tata Institute of Fundamental Research, (having the address Post Bag No 3, Pune University Campus, Ganeshkhind Road, Pune – 411 007) (hereinafter referred to as NCRA).

Conclude this Memorandum of Understanding (hereinafter referred to as the "MoU") with respect to the establishment of joint research and educational programmes between IISER and NCRA.

**I
PURPOSE**

1. IISER Pune is a research-teaching Institute for basic sciences and offers a 5 year dual BS-MS programme (after class XII) and a regular (post Msc) Ph.D. Programme, and soon plans to offer a 5 year (post Bsc) Integrated Ph.D. programme. The courses offered and teaching pattern emphasize interdisciplinary. IISER has already established an impressive profile and regularly attracts some of the best science students in the country. IISER faculty carry out research in a broad range of disciplines, including Astronomy and Astrophysics.

2. NCRA, a national centre of the Tata Institute of Fundamental Research, is a highly reputed research institute carrying out cutting edge work in Radio Astronomy. NCRA offers a PhD program for students with an MSc/BTech degree. The program consists of one year of specialized coursework (the 'IUCAA-NCRA Graduate School', run in collaboration with IUCAA) followed by a masters project and then by specialized research, at the doctoral level, generally using the Giant Meterwave Radio Telescope (GMRT) that is built and operated by NCRA.
3. NCRA has well equipped research laboratories (including the Radio Physics Laboratory in the Pune Campus, and other specialized labs in the Khodad Campus) that physics students will find useful both for lab-work and long term projects. These are, of course, in addition to the GMRT itself, which is a world class facility for research in low frequency radio astrophysics.
4. Therefore, IISER and NCRA recognize that mutual collaboration, given each other's strengths in teaching and research, will mutually benefit the students and faculty in each Institute.

II COLLABORATIVE ACTIVITIES

IISER and NCRA agree to collaborate on the following joint activities:-

- i. Integrated PhD programs at the two institutions. The course content of these programs would be a combination of the general Physics and Mathematics courses largely taught at IISER, and the specialized Astronomy and Astrophysics courses largely taught in the IUCAA-NCRA graduate school. IISER and NCRA students could attend courses together, but will be awarded degrees and be governed by the guidelines of their respective institutes.
- ii. Teaching of Physics/Mathematics/Astronomy and other courses at IISER and in the IUCAA-NCRA graduate school involving faculty from each institute.
- iii. Student labs and projects. IISER students could do lab work and/or project work in the specialized NCRA labs and the GMRT.

- iv. Short term vacation programs in Astronomy and Astrophysics at NCRA aimed at IISER students.
- v. Auditing of courses at either institute by students from the other after due clearance from their supervisor(s).

III RESPONSIBILITIES OF THE PARTIES

A pair of Co-ordinators, one from each institute will be nominated. They will frame the programme structure and also look after the smooth running of the programme. NCRA will seek ratification of the integrated PhD programme from the TIFR Academic council.

IV TERMS AND VALIDITY OF THE MoU

The term of this MoU will be for 5 years from the date of signing the agreement and renewable afterwards. If deemed necessary, it can be terminated at any time, by mutual consent.


V MODIFICATION

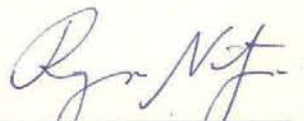
Any modification or amendment of this MoU shall be made on the basis of mutual written understanding.

Each party shall sign two identical copies of this MoU, and retain one copy.

For and on behalf of the
Indian Institute of Science Education
Research, Pune (IISER)

For and on behalf of the
National Centre for Radio and
Astrophysics, Pune (NCRA)


Dr. K. N. Ganesh
Director 1-12-2009

 1.12.2009
Prof. Rajaram Nityananda
Centre Director


(R. RAMACHANDRAN)


(B C JOSHI)