

Asesh Krishna Datta

Research Summary:

During 2006 - 2007, I have been working mainly on the following areas:

1. Issues involved in interpretation of forthcoming data from the Large Hadron Collider (LHC)
2. Phenomenology of CP-violating (CPV) Supersymmetric (SUSY) models
3. Collider studies of high-scale nonuniversalities in SUSY spectrum
4. Alternate scenarios (mechanisms) of Electroweak Symmetry Breaking (EWSB) and their collider phenomenology
5. Phenomenology of Extra Dimensional Models

Preprints: (In preparation)

1. *Minimal Universal Extra Dimensions in CalcHEP/CompHEP*, with K. Kong and K.T. Matchev,
2. *On implications of high-scale nonuniversalities of gaugino masses at LHC*, with S. Bhattacharya and B. Mukhopadhyaya
3. *On interesting signatures of CP-violating SUSY at LHC*, with A. Datta, P. Bandopadhyay and B. Mukhopadhyaya
4. *On novel signatures of Little Higgs scenario (with T-parity) at LHC*, with P. Dey, S.K. Gupta, B. Mukhopadhyaya and A. Nyffeler

Visits to other Institutes:

1. IACS, Kolkata, January, 2007
2. Participated in *Strings To LHC*, an international conference organised by TIFR and held at Goa in January, 2007
3. Participated in *Weak interactions and Neutrinos*, an international conference held at SINP, Kolkata in January, 2007

Invited Lectures/Seminars:

1. *Collider Searches for Extra Dimensions* at the Workshop on LHC Physics, TIFR, Mumbai, September, 2006
2. *Spin Information at the LHC* at the Topical Meeting on Physics at the LHC, HRI, Allahabad, December, 2006

Other Activities:

1. Mentoring project students:

- (a) During the period I offered reading course (project) on the Basics of Collider Physics to one of our young students who later joined the phenomenology group for her Ph.D.
- (b) A visiting consultant/student has been working with me for last 8 months on building up and streamlining the computing facilities used by the collider group here at HRI. We have already met a few targets while working with a broader goal and a few projects are to be finished soon.

2. Reviewing papers:

Served as a referee for the following journals:

- (a) One paper submitted to the Physics Letters B
- (b) One paper submitted to the Indian Journal of Physics

3. HRI Internal Seminar:

Warming Up for the LHC, HRI internal symposium, March, 2007.

4. HRI Internal Duty:

- (a) Serving as a member in the Computer Committee
- (b) Serving as a member in the Sport and Entertainment Committee

5. Organizing Workshops/Conferences/Schools etc.:

- (a) Organized the Topical Meeting on Physics at the LHC (with international participation) along with my HRI colleagues in December, 2006
- (b) Serving as one of the conveners for the Xth Workshop on High Energy Physics Phenomenology (WHEPP-X, with international participation) to be held at Chennai, India during January, 2008
- (c) Organizing a Pedagogical School on QCD at HRI in November, 2007 along with my colleagues from HRI

6. Project RECAPP:

The other group-effort in which I have been taking immense interest and devoting time is towards having a concrete planning for the proposed Regional Centre for Accelerator-based Particle Physics (RECAPP). The project is now technically granted and started functioning in April, 2007. The running of the Centre in full swing which envisages a vigorous visitors' programme requires quite a few technical and academic issues to be addressed immediately. As the technical coordinator of the Centre I am now pursuing them.