ECT* in 2020 – a Vision

The European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT*) was established in 1993 and has developed into a successful research center for nuclear physics in a broad sense, covering nuclear structure and reactions, hadron and relativistic heavy ion physics as well as related areas in particle and astrophysics, condensed matter physics and the quantal physics of small systems.

With the gradual emergence of a European Research Area (ERA) and growing international coordination ECT* faces new opportunities and challenges. The following is a vision of the development of ECT* in the longer term. The vision is intended to serve as a guideline for the Board and Director, and is open for comments and input by users and supporters of the Centre.

Three main components of the ECT* mission are identified in its Statutes:

1. A research center for theoretical nuclear physics in a broad sense.
2. Promoting contacts to experiments and to related areas of research.
3. A centre for the training of young researchers.

1. A center for frontline research.

ECT* strives to strenghten its staff of experienced researchers by establishing attractive medium-term positions at the assistant professor level. Together with the Director, Vice Director and long-term visitors they define topical research themes at ECT* for periods of 2...4 years. The faculty is supported by postdocs and assists in guiding graduates students at the University of Trento and other universities in Europe.

Benefits for the ERA:

- ECT* furthers the mobility of frontline researchers within and to Europe.
- ECT* generates future leaders of research. Its fixed-term faculty forms a talent pool for universities and laboratories.

Requirements:

- Fixed term positions at the assistant professor and postdoctoral levels.
- An administrative framework which makes these positions competitive.
- A fully developed infrastructure.
- Financial support from research councils and EU programs.

2. Promoting research collaboration and workshop activities.

Significant European and global investments are made in accelerator and other experimental facilities. Their efficient utilization requires good coordination and exchanges of ideas – experiments stimulating theory and *vice versa*. Interdisciplinary contacts between the various subfields covered by ECT* and with related areas of physics and science is beneficial to all parties.

The ECT* workshop program has developed very successfully and already serves many of these needs. The unifying Europe and global research scene motivate further strengthening and innovation:

- More proactive measures, whereby ECT* as an ideal meeting ground identifies the need for workshops on specific topics, and makes them happen.
- ECT* as a place of choice for collaboration meetings of experimental and theoretical research groups of various sizes.
- An active visitor program, including physicists who work in areas related to ongoing training activities at ECT*.
- Cross-disciplinary activities, such as the physics of cold atoms and of mesoscopic physics.
- Activities that bring science closer to the citizens.

3. Training programs.

Europe faces a shortage of skilled scientists. ECT* will increasingly support the training of PhD students and postdocs through lecture courses and visits.

- Extended training periods in topical areas. Students attend lectures, are guided by ECT* scientists and participate in workshops during their stay. They are provided with office space and encouraged to pursue also their own research work.
- Collaboration with Graduate Schools operating at a European level. ECT* hosts lecture weeks and supports other training events.
- Promotion of joint research projects between its faculty and physicists elsewhere. In the context of such projects ECT* faculty members may serve as co-supervisors of PhD students at European universities.

Approved by the ECT Board*
6 October 2007