

Proposal Submission Form



EUROPEAN COMMISSION
6th Framework Programme on
Research, Technological
Development and Demonstration

Marie Curie Mobility Actions
Research Training Networks

A1

Proposal Number

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Proposal Acronym

QCD@LHC

General Information on the Proposal

Proposal Title

Dynamics of Short-Distance Strong Interactions at LHC

Action Code

RTN

Scientific Panel

PHY

Total duration in months

48

Call identifier

FP6-2005-Mobility-1

Keyword 1

Quantum field theory

Keyword 2

Experimental physics

Keyword 3

Computational physics

Free Keywords

Elementary Particle Physics,
Particle Physics Phenomenology,
Theoretical High Energy Physics,
Collider Physics

Abstract (up to 2000 characters)

High energy physics is poised to enter a new era of discovery with the start of Large Hadron Collider (LHC) operations in 2007. The LHC will play a key role in exploring spontaneous symmetry breaking in the Standard Model (SM) and in discovering new physics phenomena beyond it (BSM). The use of a high-energy hadron collider as a research tool makes substantial demands upon the theoretical understanding of the strong interactions which may mimic or hide new physics signals.

The aim of the research training network {tt QCD@LHC} will be to focus the European expertise in applications of QCD, in order to achieve an understanding of the collisions between protons at LHC with an unprecedented level of accuracy. The QCD@LHC network focuses on the following physics goals, which we see as essential for the optimal exploitation of LHC:

- (i) advances in the complete modelling of hard interaction events at LHC in hadron-level event generators, through an improvement of their theoretical accuracy, programming structure and interoperability;
- (ii) refinement of precision of the QCD predictions at the LHC, by the use of exact higher order and resummed parton-level cross sections;
- (iii) prediction of QCD backgrounds and New Physics signals associated with new processes and particles expected to be produced at LHC;
- (iv) development of new fundamental methods for QCD and other gauge theory amplitudes inspired by dualities with string theory.

In order to implement this plan the network establishes efficient collaborations between the network teams and a dedicated training program that (a) trains current graduate students through specialised Research Training Sessions, and teaches them the most advanced technologies in the field; (b) creates new graduate student positions; (c) provides a sufficient number of postdoc positions for experienced researchers to participate in the frontier research and to increase the transfer of knowledge within the project.