



# CERN Colloquium

SPEAKER: Prof. Massimo Florio (University of Milan)  
TITLE: **Cost-Benefit Analysis of the LHC to 2025 and beyond: Was it Worth it ?**  
DATE: Thu 11/06/2015 16:30  
PLACE: Council Chamber

## ABSTRACT

Social cost-benefit analysis (CBA) of projects has been successfully applied in different fields such as transport, energy, health, education, and environment, climate change policy, but often considered impossible for research infrastructures because of the unpredictable benefits of scientific discovery. We have designed a CBA model for large scale research infrastructures and applied it to the LHC. After estimating investment and operation costs spread over 30 years (to 2025), combining data from the CERN and the experiments, we evaluate the benefits of knowledge output (publications), human capital development, technological spillovers, and cultural effects. Additionally, willingness-to-pay for the pure value of discovery at the LHC by the general public is estimated through a survey of around 1,000 respondents in four countries. Setting to zero any until now unpredictable economic value of discovery of the Higgs boson (or of any new physics), we compute a probability distribution for the net present value of the LHC through Monte Carlo simulation of 19 input, output and valuation variables and show that there is currently 92% probability that social benefits of the LHC exceed its costs. The approach and the results shed light on the social net benefits of research infrastructures for the first time in an empirically testable form.

Organised by: Wolfgang LERCHE PH/TH .....\*\*Tea  
and coffee will be served at 16h00\*\*