DESY

Particle and Astroparticle Physics Colloquium

How strong are the strong interactions?

Tuesday, 5 December 2017, 16:45 h
DESY Auditorium

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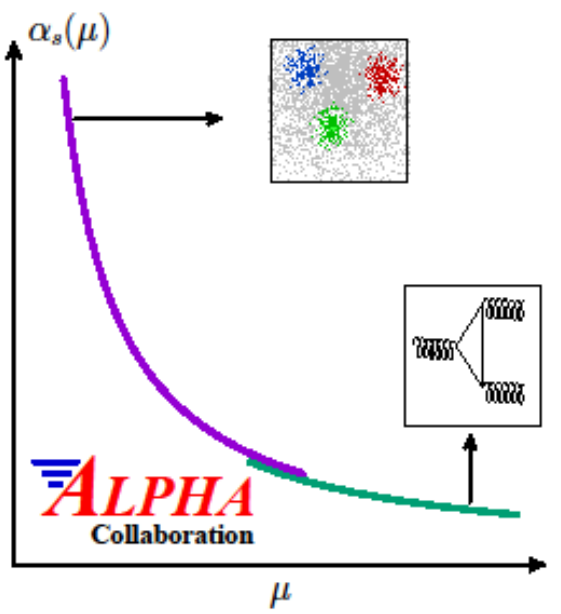
(DESY)



The ALPHA Collaboration has computed one of the most elusive fundamental parameters of Nature: the strong coupling. It governs the interactions of quarks and gluons. At high energies, such as the ones reached at the Large Hadron Collider (LHC) at CERN, many processes can be computed in terms of a Taylor series in this coupling. A precise input value for these series is thus essential to make best use of the accelerator. We have “simulated” QCD, the fundamental theory of the strong interactions, over a large range of energy scales in order to extract the coupling at LHC energies. The experimental input which is presently best suited to minmize the total uncertainty is, surprisingly, the weak decay rate of Pions and Kaons.
We explain how our work sets a new standard in the determination of the strong coupling.

- **Coffee, tea and cookies will be served at 16:30h**
- **After the colloquium there is a chance for private discussions with the speaker over wine and pretzels**