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**Very brief introduction info ALICE
experiment**

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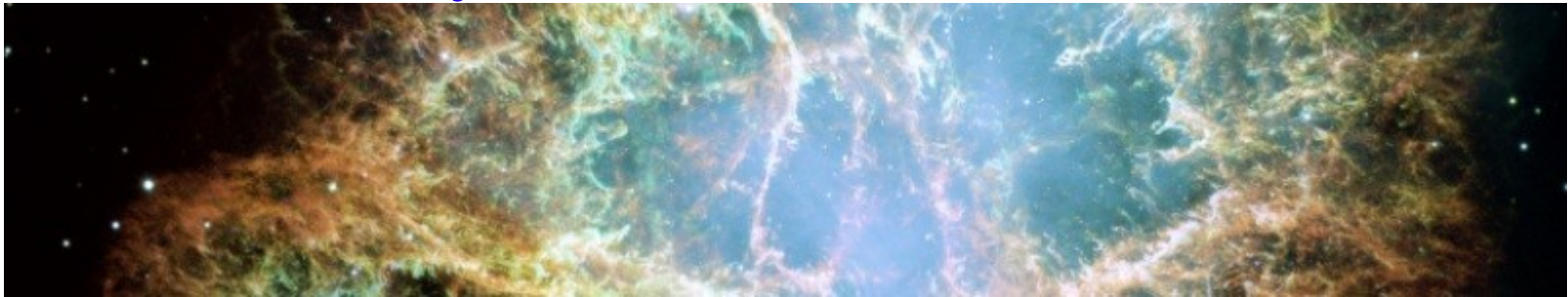
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ALICE – a journey to the beginning of the Universe



ALICE is the acronym for **A** Large **I**on **C**ollider **E**xperiment, one of the largest experiments in the world devoted to research in the physics of matter at an infinitely small scale.



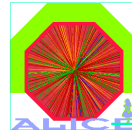
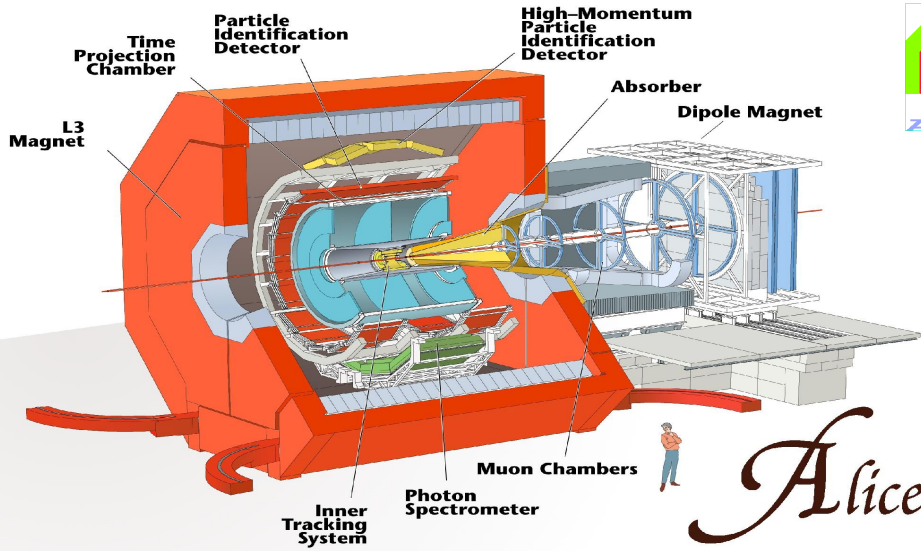
The study of strongly interacting matter at extreme energy densities (QCD thermodynamics). Statistical QCD predicts that, at sufficiently high density, there will be a transition from hadronic matter to a plasma of deconfined quarks and gluons—a transition which in the early universe took place in the inverse direction some 10^{-5} s after the Big Bang.



Questions to be answered



- What happens to matter when it is heated to 100,000 times the temperature at the centre of the Sun ?
- Why do protons and neutrons weigh 100 times more than the quarks they are made of ?
- Can the quarks inside the protons and neutrons be freed ?



ALICE Collaboration

- ~ 1/2 ATLAS, CMS, ~ 2x LHCb
- ~1000 people, 30 countries, ~ 80 Institutes

ALice

Total weight	10,000t
Overall diameter	16.00m
Overall length	25m
Magnetic Field	0.4Tesla

8 kHz (160 GB/sec)

level 0 - special hardware

200 Hz (4 GB/sec)

level 1 - embedded processors

30 Hz (2.5 GB/sec)

level 2 - PCs

30 Hz
(1.25 GB/sec)

data recording &
offline analysis



Data processing (1/2)



- Huge amount of experiment data (1.5 – 2 petabytes of data every year) needs to be stored and processed
- Such task requires completely new approach – Grid
- For the moment ALICE has SE capacity is more 95 PB, CE resources are 4200 kSI2k units in total



Data processing (2/2)



- **AliEn** (**ALICE** environment) - lightweight Grid framework built around Open Source components using the combination of Web Service and distributed agent model. It is being developed by the ALICE collaboration as a production environment for the simulation, reconstruction and analysis of physics data.



References



- www.aliceinfo.cern.ch
- Virtual tour
<http://aliceinfo.cern.ch/Public/en/Chapter4/Chapte>
- ALICE monitoring web-page
<http://pcalimonitor.cern.ch>