


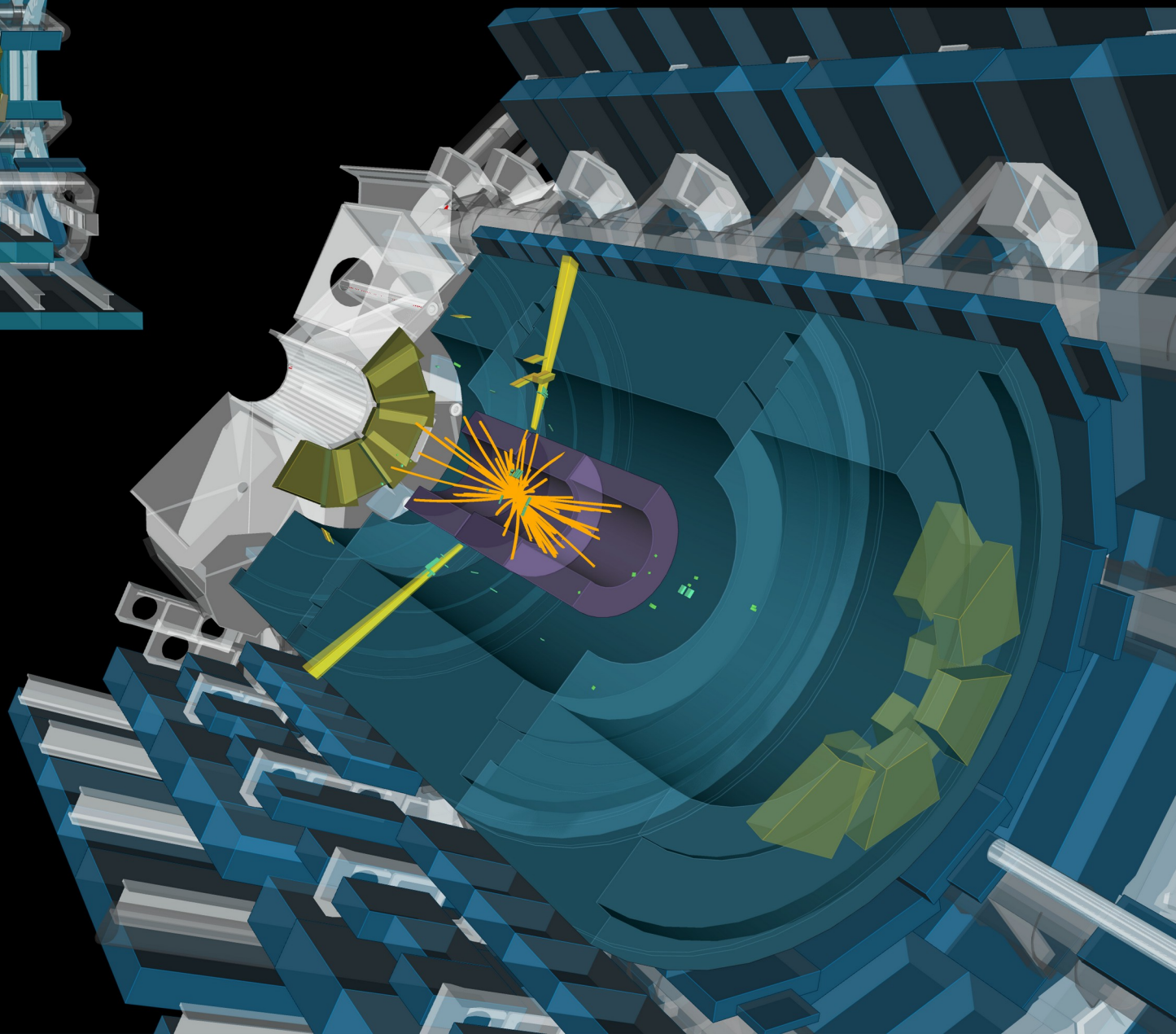
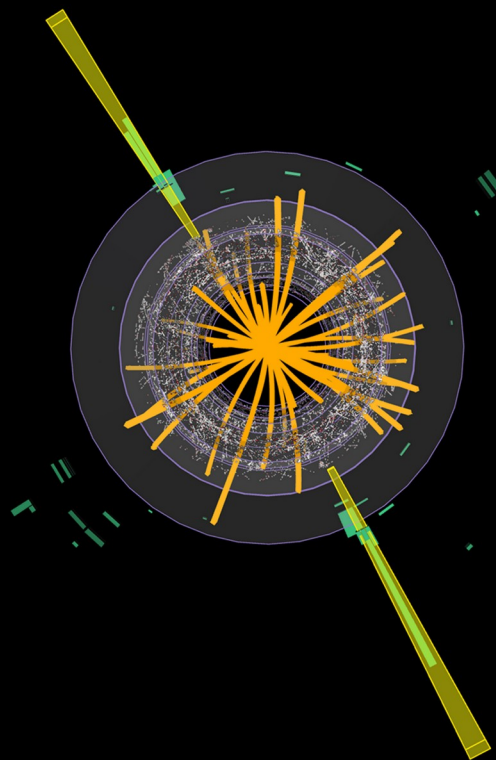
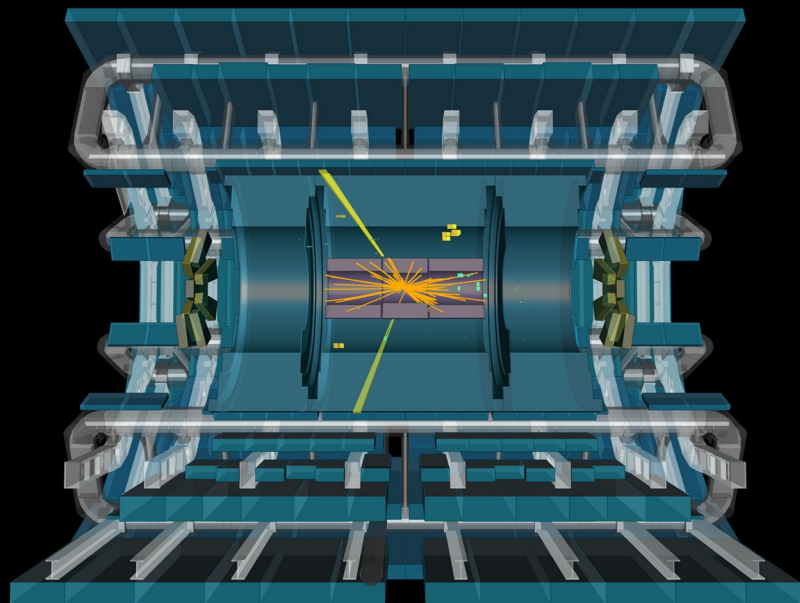
B2
Symmetry and Relativity
Lecture 16



Discovering a new particle

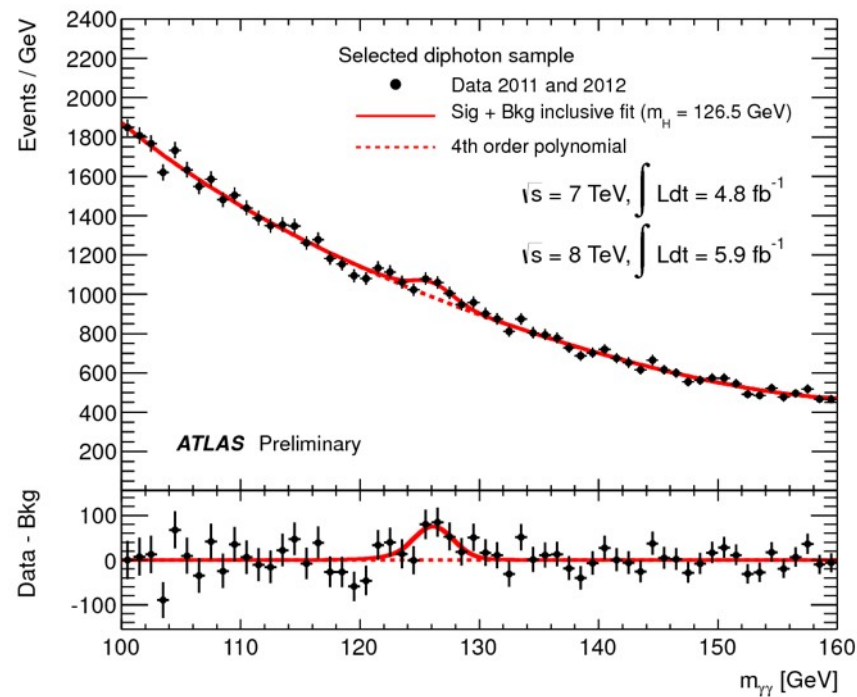
- Example: Higgs boson
- Discovery at Large Hadron Collider (LHC) most likely through decay to two photons
 - Look for 2 photons in the same pp collision
 - Add their 4-momenta, calculate invariant mass
 - LOTS of photons...
 - Particle → additional correlation among photon pairs in invariant mass spectrum

Run: 191426
Event: 86694500
2011-10-22 17:30:29 CEST



Higgs boson

- First observed by ATLAS and CMS at CERN
- Announced 4 July 2012



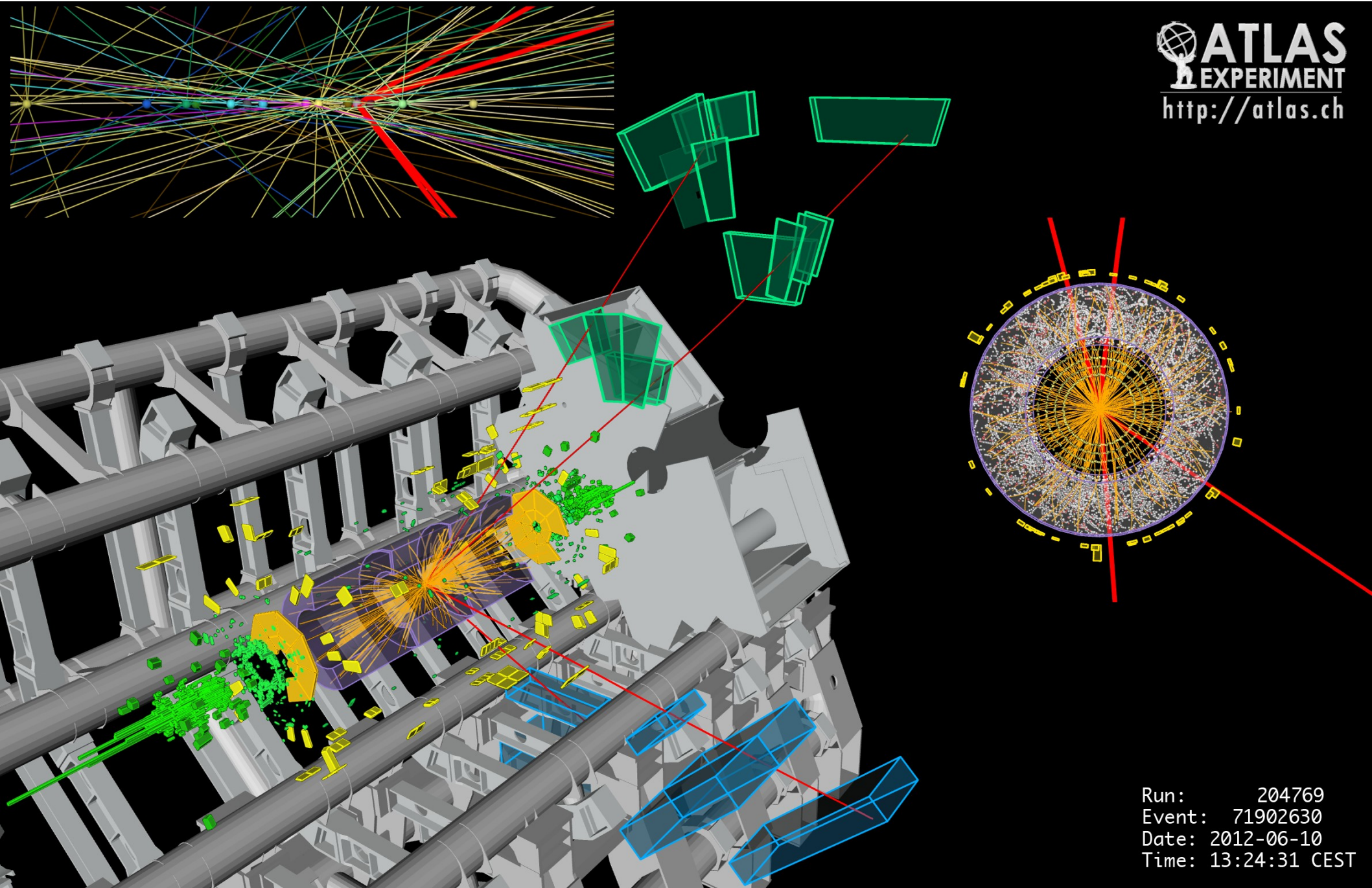






$H \rightarrow \mu\mu\mu\mu$

 **ATLAS**
EXPERIMENT
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Run: 204769
Event: 71902630
Date: 2012-06-10
Time: 13:24:31 CEST

