US PARTICIPATION IN THE HIGGS DISCOVERY

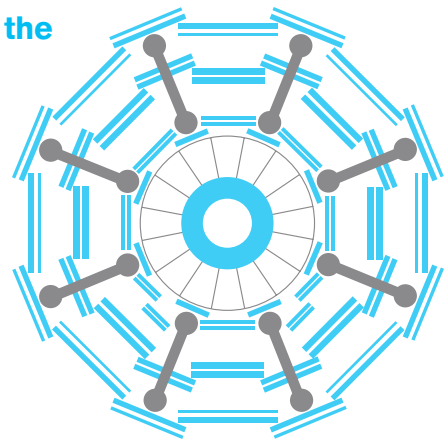
On July 4, 2012, scientists at CERN announced the discovery of an essential part of the Standard Model of particle physics: the Higgs boson. The search for the Higgs at experiments at the Large Hadron Collider was an international effort involving thousands of people, with physicists and engineers from US institutions playing a significant role throughout.

CREATING THE EXPERIMENTS

The United States contributed $164 million to the construction of the ATLAS detector and $167 million to the construction of the CMS detector. The US also contributed $200 million to the construction of the Large Hadron Collider.

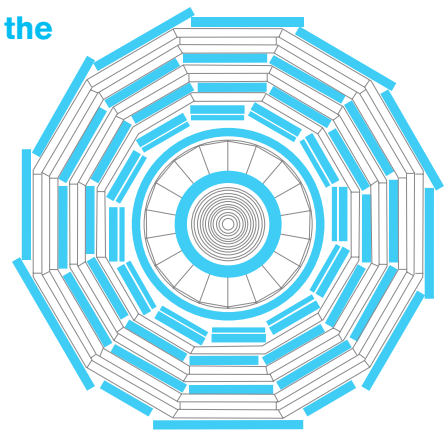
The United States contributed to the ATLAS detector in these areas:

_Silicon detectors
_Transition radiation detector
_Liquid argon calorimeter
_Tile calorimeter
_Muon spectrometer
_Trigger and data acquisition
_Technical coordination



The United States contributed to the CMS detector in these areas:

_Magnet system
_Hadron calorimeter
_Endcap muon subdetector
_Forward pixels
_Tracker outer barrel
_Electromagnetic calorimeter
_Trigger and data acquisition
_Technical coordination

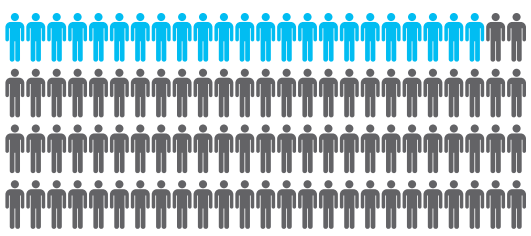


DOING THE SCIENCE

23 percent of the ATLAS collaboration members come from American institutions. 33 percent of the CMS collaboration members come from American institutions. Nearly 2000 scientists from institutions in the United States are involved in the LHC. Since 2008, the work on the ATLAS and CMS experiments resulted in about 230 doctorate degrees for US students.

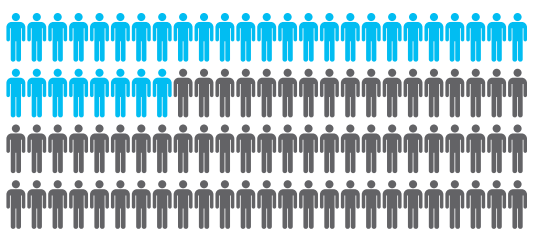
ATLAS

23%



CMS

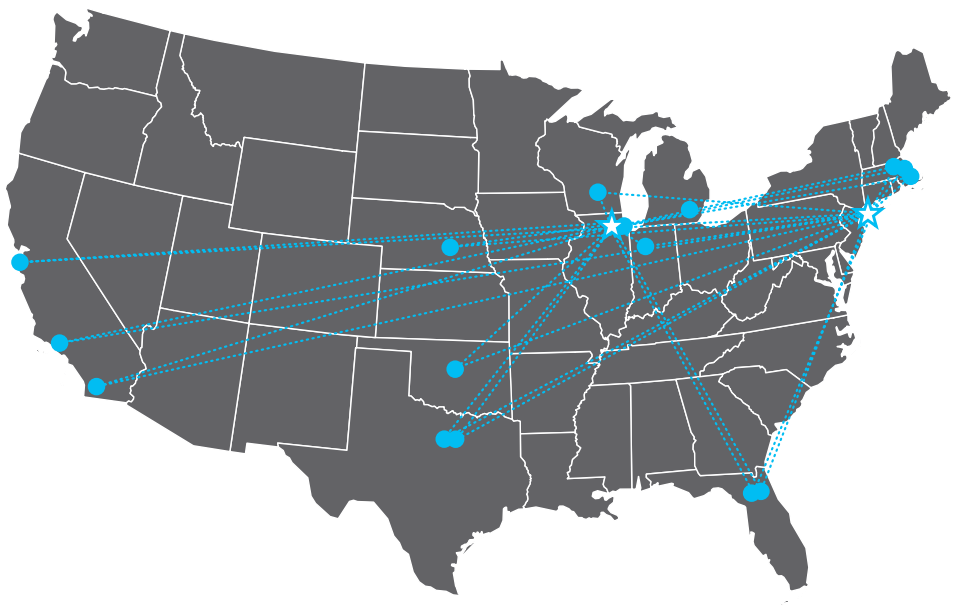
33%



TAKING THE DATA, ANALYZING THE RESULTS

Computing for LHC experiments takes place in a distributed system, with CERN providing raw and processed data to 11 computing centers, two of which are located in the United States, at Fermi National Accelerator Laboratory and Brookhaven National Laboratory. In addition to processing and storing the data, these centers distribute subsets of it to universities and institutions around the country for analysis.

The United States provides 23 percent of the computing power for the ATLAS experiment and 40 percent of the computing power for the CMS experiment.



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