

<report>

Lecture on experiment of high energy physics – real time online tour of CMS detector

Hanyang University
Department of Physics
2014207312
Gyujin Oh

It was an impressive online tour program. Since I am majoring in completely different field of physics, which is condensed matter physics, I had never been looking forward to this kind of opportunity such as the very forefront of modern physics. I had a dream of studying particle physics when I was young. Now, I am just a man who studies semiconductor devices, but I felt proud of human being making such a huge structure only for the quest of truth. The first we see in the CMS online tour was CMS Surface Hall. There was a large poster of cross section of CMS detector with original size. I heard that CMS detector was originally made on the ground and brought underground after constructing. Its location was at 100 m beneath the ground surface. When I was heard of that, I was so worried about oxygen deficiency because I had heard ventilation issue is very critical for respiration of human in such a big underground structure like tunnel even if the structures are on the Earth. However, as seen in the online tour, that kind of safety issue looked very strictly managed.

Going back to issues about detector itself, after collision event of protons in the very middle of CMS detector, numerous particles are created in accordance with collision energy, and decayed very fast leaving the electrical signal by reaction with detectors. There was several kinds of concentric layers. Inner small part consisted of calorimeters, and outer big part consisted of the muon detectors. The speaker (the helper of CMS online tour) said, the muon detector is very important because we can get the evidence of emergence of Higgs particles from muon detectors. I did not know much about particle theories, but I understood reasonability of detector shape and their functionality.

The opportunity of CMS online tour this time, became good driving motivations of studying physics. I feel thankful for professor TAE JEONG KIM and the helper of online tour who made an effort to explain all the things and questions.