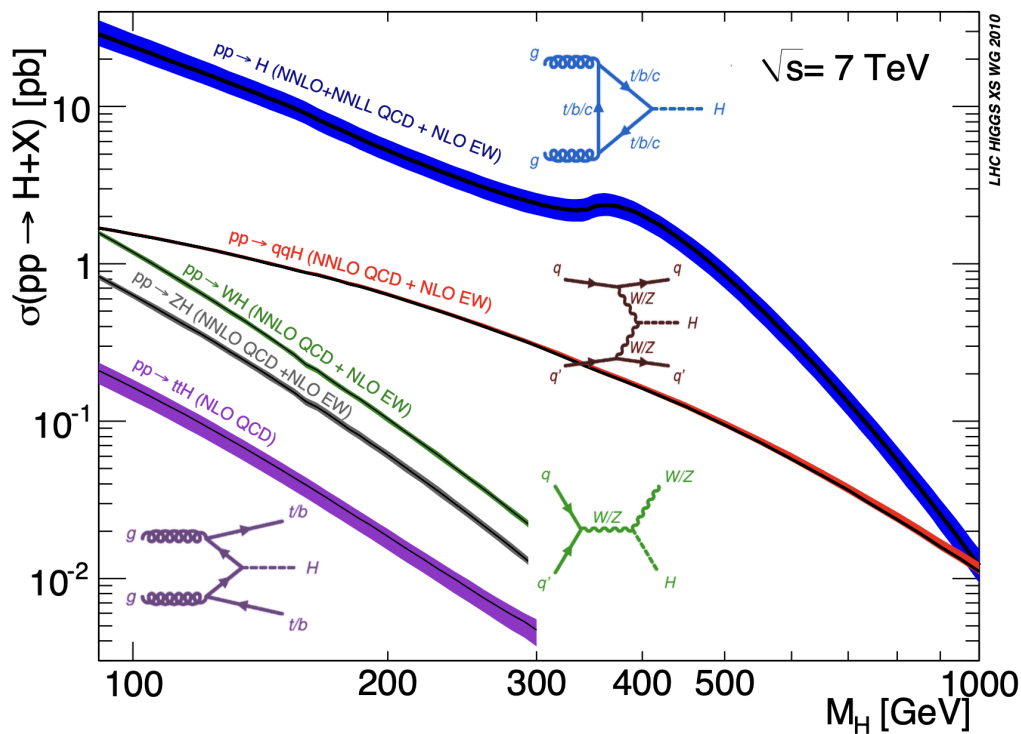


Questions and answers - Valentina Cairo Lecture

The following questions were submitted through Google Form. Some / all may have been answered in the Q&A session already. Nevertheless, we request our lecturers to provide written answers here for the benefit of those who could not attend that session. Thank you!

Slide 11. The blue curve has a bump around 350 GeV and then falls off faster than at lower energies. What is the reason for these features?



There are several effects. The “bump” happens at \sim twice the top quark mass because in the heavy quark loop of the gluon fusion production mode the dominant contribution comes from top quarks. Then, at higher Higgs boson masses, to produce heavy particles the gluons would need to take a larger fraction of the momentum from the proton, but we observe a decrease in the cross-section and a steeply falling behavior because the PDFs become much smaller for high momentum fractions.