TECHNISCHE UNIVERSITÄT DRESDEN

Bereich Mathematik und Naturwissenschaften Fakultät Physik

PHYSIKALISCHES KOLLOQUIUM

Vortrag: **Dr. Joany Manjarrés Ramos**
Technische Universität Dresden
member of the ATLAS experiment

Thema: **The physics with vector bosons pairs** *(Vorstellung für Habilitation)*

Zeit und Ort: Dienstag, 20.4.2021, 16:40 Uhr
Online-Meeting: BBB / Zugang mit Browser (Firefox oder Chrome)
- Teilnehmende mit ZIH-Login über folgenden Link:
https://selfservice.zih.tu-dresden.de/l/link.php?m=108608&p=f2302982
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Leitung: Prof. Dr. Michael Kobel

Kurzfassung: The Standard Model (SM) of particle physics provides the current best description of the sub-atomic nature of the known Universe. However fundamental questions remain unanswered by the SM: neutrino masses, the cosmological baryon asymmetry, the existence of dark matter and dark energy components in the Universe, making the need for physics beyond the Standard Model (BSM) still more relevant now.
The Large Hadron Collider (LHC) has been taking data already for several years and even though, so far, we have not new physics candidates, the LHC has produced a huge amount of bosons, more bosons than any accelerator before. In this talk, I will discuss the physics we can do with boson pairs, because boson pairs have the potential to reveal interesting physics, in several ways. First of all, they can tell us how bosons self-interact. By studying how often the process takes place we infer how strong that self-interaction is, and learn interesting bits of information about the inner workings of the Standard Model. Or, if we find that the rate of the process is abnormally high, we start to entertain thoughts that we have hit some unknowns and that there is a new force at work, or that the model needs to be enlarged or modified by other new physics mechanisms. I will discuss how those measurements are performed and how far we have got in our understanding of the physics behind their interactions.

Biographie: Joany Manjarrés is a Venezuelan experimental particle physicist, post-doc at Technische Universität Dresden, Germany (2017-present). She was undergraduate student at Universidad de los Andes, Venezuela, and at Université Paris Sud, Orsay, France (now Université Paris-Saclay). She graduated with a PhD in physics at Université Paris Diderot (now Université de Paris) in 2013. Since 2010 she is member of the ATLAS experiment at the Large Hadron Collider LHC at CERN. Her research focus on the understanding of the Electroweak sector of the Standard Model, by doing diboson measurements, and searches for New Physics beyond the Standard Model.