



# LHC Seminar

SPEAKER: Yee Chinn Yap  
TITLE: **Observation and measurements of diboson processes with ATLAS**  
DATE: 16 Jul 2019, 11:00  
PLACE: 503/1-001 - Council Chamber

## ABSTRACT

The excellent performance of the LHC during the Run II and the high efficiency of the ATLAS detector enable both searches of rare electroweak processes and precise inclusive production measurements. The production and scattering of electroweak bosons provide a great opportunity for stringent tests of the gauge structure of the Standard Model, in particular of its electroweak sector, as well as a model-independent means to search for new physics at the TeV scale. We present recent results from the ATLAS experiment using proton-proton collisions at  $\sqrt{s}=13$  TeV, with integrated luminosities of up to  $139 \text{ fb}^{-1}$ . This includes studies of diboson production via vector-boson scattering. The results can be used to constrain new physics that manifests as anomalous electroweak-boson self interactions. We then discuss recent precision measurements of inclusive diboson production, where unfolded differential cross sections as a function of several observables are presented. All the experimental results are compared with state-of-the-art theoretical predictions and are reinterpreted in terms of an effective field theory to constrain new physics beyond the Standard Model.