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Type: **Poster presentation**

## **Constraints on off-shell Higgs boson production and the Higgs boson total width in ZZ final states with the ATLAS detector**

*Tuesday, 31 August 2021 19:08 (4 minutes)*

The off-shell production of SM Higgs boson, at the high-mass off-peak region beyond  $2m_Z$ , well above the measured resonance mass of  $m_H=125$  GeV, has a substantial cross section at the LHC, due to the increased phase space as the Z bosons become on-shell with the increasing energy scale. This presents a novel way of characterizing the properties of the Higgs boson in terms of the off-shell event yields, normalized to the SM prediction (referred to as signal strength  $\mu$ ), and the associated off-shell Higgs boson couplings. Assuming the ratio of the Higgs boson couplings to the SM predictions is independent of the momentum transfer of the Higgs boson production mechanism, a combination with the on-shell signal-strength measurement was used to set indirect limits on the total Higgs boson width with the ATLAS data collected in proton-proton collisions at the centre-of-mass energy of  $\sqrt{s} = 13$  TeV (36 fb<sup>-1</sup>).

### **Is this abstract from experiment?**

Yes

### **Name of experiment and experimental site**

ATLAS

### **Is the speaker for that presentation defined?**

Yes

### **Details**

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### **Internet talk**

Maybe

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**Session Classification:** Poster Session