

## **The once unattainable - New breakthroughs at the LHC**

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The dynamics within the Standard Model of particle physics play a central role in the properties of not only the microscopic world but also the biggest structures of our universe. The Higgs boson, for example, plays a critical role in how particles obtain their masses but also perhaps to how our universe evolved. In this talk, I will focus on a handful of recent measurements from the ATLAS detector that were considered experimentally out of reach. Through innovative ideas and powerful data science, measurements of the Higgs width and self-coupling start to become achievable. I will highlight how these results have connections beyond the microscopic world to dark matter, matter and anti-matter differences and the evolution of the universe.