

Abstract:

Wits ICPP/iThemba LABS Colloquium in Particle Physics Prof. Ashutosh V. Kotwal, Fritz London Distinguished **Professor, Duke University** The Heavyweight W-boson - an Upset to the Standard Model of Particle Physics Friday 21 October 2022, 13:15 - 14:30 SAST (CET) In-person: Honours Presentation Room P213 Zoom Link Meeting ID: 668 1854 7373 Passcode: 479944

https://indico.tlabs.ac.za/event/103/overview

The Standard Model of particle physics has been a crowning achievement of fundamental physics, culminating in the discovery of E665, D0, CDF and ATLAS experiments. Professor Kotwal initiated the Higgs boson in 2012. As a quantum theory of the building blocks and led the analyses to measure the W-boson mass precisely in the CDF II experiment at Fermilab. Over the last 27 years, he has of matter and forces, it has been one of the most successful theories in published five world-leading measurements of the W-boson mass. science. The recent measurement of the mass of the W-boson disagrees with the theory prediction. This upset to the Standard Model Prof. Kotwal is the Fritz London Distinguished Professor of Physics may point towards exciting new discoveries in particle physics in the at Duke University. He is a Fellow of the American Physical Society coming years. We will discuss the Standard Model, the crucial role of and the American Association for the Advancement of Science. He the W-boson, and how it has become the harbinger of new laws of is the recipient of the Alfred P. Sloan Foundation Fellowship, the Outstanding Junior Investigator Award from the US Department of nature. Energy, and the Dean's Leadership Award from Duke University. He has served as the Associate Chair of the Physics Department.



## science & innovation

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rofessor Ashutosh V. Kotwal's research focuses on precision measurements of fundamental particles and searches for new laws of nature at high energies, using data from the

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