

SES19-2019-000022

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Abstract for an Invited Paper
for the SES19 Meeting of
the American Physical Society

The Discovery of the Higgs Particle

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The Higgs particle discovery was announced by the CERN Director General on July 4th, 2012 in a world-wide video conference originating from CERN. This discovery culminated three years of intensive data taking and analysis by the CMS and Atlas experiments and completed, in some sense, the Standard Model. The observation of the Higgs validated the theoretical work done half a century before in 1964 by theoreticians Peter Higgs and Francis Englert with contributions by Gerry Guralnik, Thomas Kibble, and Richard Hagen. Higgs and Englert received the Nobel prize for the prediction of the existence of the Higgs particle and the development framework of how this object gives mass to all the SM particles. This talk is a snapshot of the state of the data and confidence in the result that the Atlas and CMS experimenters had in mid-summer 2012. It is hoped this will give some sense of the tension and concern associated with the announcement of such a monumental discovery. Later work over the last 7 years have produced a richness of Higgs results that will be discussed in subsequent talks and will give some sense of the limited data at the time of the discovery.