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New Higgs-Like States

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Message from the Guest Editors

The LHC experiments at CERN discovered the last missing piece of the standard model (SM) in the form of the first ever elementary scalar boson—the Higgs boson. Measurements of its properties and couplings to gauge bosons and fermions at the LHC provide an important test of the spontaneous electroweak symmetry breaking (EWSB) and mass generation of elementary particles in the SM. However, the discovery of the first elementary scalar particle occurred just over 10 years ago. Its couplings to first- and second-generation fermions, Higgs self-coupling, and the Landau–Ginzburg form of the Higgs potential have yet to be verified, and many of its properties have not been measured with sufficient precision to rule out the effect of possible new particles beyond SM.

This Special Issue of *Symmetry* is devoted to new Higgs-like states in high-energy physics, cosmology, and condensed-matter physics and welcomes original research articles and reviews.

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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