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Selected Papers from 43rd International Conference of Theoretical Physics

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Edited by

Janusz Gluza

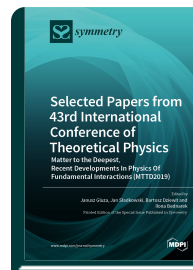
Jan Śladrkowski

Bartosz Dziewit

Ilona Bednarek

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Understanding the origins of the Universe and how it works and evolves is the present mission of a large community of physicists. It calls for a large scale vision, involving general relativity, astrophysics, and cosmology. Theoretical physics is presently at an important moment in its history. As predicted by Einstein, gravitational waves have been experimentally proven to exist. With the discovery of the Higgs boson, the set of interactions and elementary particles that is called the "standard model" (SM), is complete. Yet the Higgs boson itself, and how it breaks the electroweak symmetry, remains a fascinating subject requiring further studies and verification. Furthermore, several experimental facts are not accounted for by the SM: (i) the baryon asymmetry of the Universe, (ii) the nature and origin of dark matter, and (iii) the origin of neutrino masses; these have no unique, if any, explanation in the SM and yet will require answers from particle physics. We need to explore further both SM and its extensions. This is a subject of papers included in this book, which gives representation to the topics discussed during the Matter to the Deepest conference in 2019 in Poland (<http://indico.if.us.edu.pl/event/5>).

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