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978-1-107-00483-2 - Constructing Reality: Quantum Theory and Particle Physics

John Marburger, III

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Constructing Reality

Questions of the fundamental nature of matter continue to inspire and engage our imagination. However, the exciting new concepts of strings, supersymmetry, and exotic matter build on ideas that are well known to physicists but mysterious and puzzling to people outside of these research fields.

Covering key conceptual developments from the last century, this book provides a background to the bold ideas and challenges faced by physicists today. Quantum theory and the Standard Model of particles are explained with minimal mathematics, and advanced topics, such as gauge theory and quantum field theory, are put into context. With concise, lucid explanations, this book is an essential guide to the world of particle physics.

JOHN MARBURGER, III, is University Professor of Physics and Electrical Engineering and Vice President for Research at Stony Brook University. Previous to this, he has been Science Advisor to the President of the United States and Director of the Office of Science and Technology Policy, Director of Brookhaven National Laboratory, and President of Stony Brook University. His accomplishments in science policy and administration have been recognized by numerous awards and honors.

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