# PICTURING QUANTUM PROCESSES

The unique features of the quantum world are explained in this book through the language of diagrams, setting out an innovative visual method for presenting complex theories. Requiring only basic mathematical literacy this book employs a unique formalism that builds an intuitive understanding of quantum features while eliminating the need for complex calculations. This entirely diagrammatic presentation of quantum theory represents the culmination of 10 years of research, uniting classical techniques in linear algebra and Hilbert spaces with cutting-edge developments in quantum computation and foundations.

Written in an entertaining and user-friendly style and including more than 100 exercises, this book is an ideal first course in quantum theory, foundations, and computation for students from undergraduate to PhD level, as well as an opportunity for researchers from a broad range of fields, from physics to biology, linguistics, and cognitive science, to discover a new set of tools for studying processes and interaction.

BOB COECKE is Professor of Quantum Foundations, Logic and Structures at Oxford University, where he also heads the multidisciplinary Quantum Group. His pioneering research stretches from categorical quantum mechanics to the compositional structure of natural language meaning, and recent interests include causality and cognitive architecture.

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## A First Course in Quantum Theory and Diagrammatic Reasoning

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