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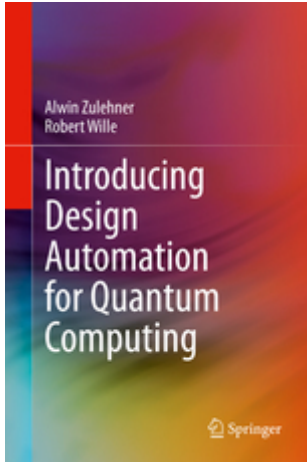


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# Introducing Design Automation for Quantum Computing

Authors: **Zulehner**, Alwin, **Wille**, Robert

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Provides a first comprehensive introduction into design automation for quantum computing that tackles practically relevant tasks

Targets the quantum computing community as well as the design automation community, showing both perspectives to quantum computing, and what impressive improvements are possible when combining the knowledge of both communities

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About this book

This book offers readers an easy introduction into quantum computing as well as into the design for corresponding devices. The authors cover several design tasks which are important for quantum computing and introduce corresponding solutions. A special feature of the book is that those tasks and solutions are explicitly discussed from a design automation perspective, i.e., utilizing clever algorithms and data structures which have been developed by the design automation community for conventional logic (i.e., for electronic devices and systems) and are now applied for this new technology. By this, relevant design tasks can be conducted in a much more efficient fashion than before – leading to improvements of several orders of magnitude (with respect to runtime and other design objectives).

Describes the current state of the art for designing quantum circuits, for simulating them, and for mapping them to real hardware;

Provides a first comprehensive introduction into design automation for quantum computing that tackles practically relevant tasks;

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Alwin Zulehner

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