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Tools for Practical Software Verification

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Revised Tutorial Lectures

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Preface

The LASER summer school, organized by the Chair of Software Engineering at ETH Zurich, brings together concepts and practices of software engineering. Since its inception in 2004, each year the LASER summer school has focused on an important software engineering topic. This volume contains selected lecture notes from the 8th LASER Summer School on Software Engineering: Tools for Practical Software Verification held during September 4–10, 2011 in Elba Island, Italy.

This book contains contributions by Edmund Clarke, William Klieber, Milos Novacek, and Paolo Zuliani on model checking; Patrice Godefroid and Shuvendu K. Lahiri on approaches for representing programs by logic formulas; Cesar Munoz and Ramiro Demasi on advanced theorem-proving techniques in PVS; Christine Paulin-Mohring on an introduction to the Coq proof-assistant; Julian Tschannen, Carlo Alberto Furia, Martin Nordio, and Bertrand Meyer on automatic verification of advanced object-oriented features; and Luke Herbert, K. Rustan, M. Leino, and Jose Quaresma on program verification using Dafny.

We would like to thank the lecturers and their co-authors for contributing to this volume. We thank Nazareno Aguirre, Cristina Cornes, Dino Distefano, Diego Garbervetsky, Max (Yu) Pei, Nadia Polikarpova, Julian Tschannen, and Christoph Wintersteiger for their feedback on drafts of the papers. We are grateful to Claudia Günthart, Nadia Polikarpova, Julian Tschannen, and the members of the ETH Chair of Software Engineering for assisting with the organization of the LASER summer school. We thank Microsoft and ETH Zurich for their financial support.

September 2012

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