PREFACE

This text is designed to support a one-semester course in quantum mechanics NOFY042 (Soldán, Augustovičová) at Faculty of Mathematics and Physics, Charles University. It has been written for students of the experimentally oriented study programs who want to learn and apply quantum mechanical methods in order to solve problems in chemical physics, astrophysics, surface physics, and physics of ionized media. We do not try to cover the whole undergraduate syllabus of the course in quantum mechanics here, because there are shelves of quantum physics exercise books available, this text has a supportive character to concern a few topics such as, *e.g.*, approximate methods in quantum mechanics, angular momentum, and atomic structure. We tried to make the solutions rather detailed so as to make it easier to students to clearly understand the steps being done. Moreover, several exercises are often solved using two different methods to practice different approaches used in quantum mechanics.

We would like to ask readers to inform authors (email: augustovicova@karlov.mff.cuni.cz, jiri.klimes@mff.cuni.cz) about misprints and errors that could appear in the text.

At the end of the foreword, we would sincerely thank all those who contributed with their work and advice in improving this writing, namely Barbora Bezděková, Dr. Petr Dohnal, and Tereza Uhlířová.

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