Preface

I have been teaching courses on experimental techniques in nuclear and particle physics to master students in physics and in engineering for many years. This book grew out of the lecture notes I made for these students. The physics and engineering students have rather different expectations of what such a course should be like. I hope that I have nevertheless managed to write a book that can satisfy the needs of these different target audiences. The lectures themselves, of course, need to be adapted to the needs of each group of students. An engineering student will not question a statement like "the velocity of the electrons in atoms is $\approx$1% of the velocity of light", a physics student will. Regarding units, I have written factors h and c explicitly in all equations throughout the book. For physics students it would be preferable to use the convention that is common in physics and omit these constants in the equations, but that would probably be confusing for the engineering students.

Physics students tend to be more interested in theoretical physics courses. However, physics is an experimental science and physics students should understand how experiments work, and be able to make experiments work. As a post doc, I have never designed any electronics board, but many times I have had to find out why the board I have given did not do what it was supposed to do and fix the problem. This is an essential skill any experimental physicist should have. I hope this book will help the students in acquiring this skill and provide her or him with a sufficient basic knowledge on nuclear and particle detection techniques such that she or he is able to read, and understand, the scientific literature in this field.

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