## Reading Week Assignment<sup>1</sup>

## MAU44406, The Standard Model of Elementary Particle Physics, 2019/20

## Lecturer: Stefan Sint

## Reading tasks

- 1. **History of elementary particle physics** Read through chapter 1 of Griffith's book and take 1-2 pages of notes regarding important mile-stones.
- 2. Feynman's path integral formulation of Quantum Mechanics

Work through the beginning of chapter 9 of Peskin and Schroeder's book. You may also be interested to have a look at Feynman's original paper from 1948,

https://journals.aps.org/rmp/pdf/10.1103/RevModPhys.20.367

and here are quite readable lecture notes of a summer school by R. MacKenzie:

https://arxiv.org/pdf/quant-ph/0004090.pdf

There you'll also find the references to the standard text books, by Feynman and Hibbs, and by Schulman. To wrap up, choose some application of the Feynman path integral and summarize it on a couple of pages.

3. The Higgs mechanism in the example of the abelian Higgs model Work through chapter sections 10.7-9 of Griffith's book about the Higgs mechanism in the case of a U(1) symmetry. Give a short account of the logic and the steps involved.

<sup>&</sup>lt;sup>1</sup>Due Wednesday 11 March 2020 in class. Please staple your solutions together and make sure that your name is readable.