

## PROGRAM FOR QUANTUM INFORMATION AND COMPUTING,

2023

Schedule: The course starts officially on March 22, and ends on May 26. On request, the course will be given as a correspondence course.

- The introductory meeting on March 22 will be via zoom. You will get the link a day or so before (if you have registered for the course).
- There are lecture notes on the course homepage. They contain  $\geq 70$  exercises and 5 problems. Try as many as you can, and send the attempted solutions to me per email. I will then give detailed comments again per email. *The actual teaching will consist of these comments.*
- On the home page you can see when the lecture notes have been updated, and other news.
- There will be question sessions at Albanova on Wednesdays and Fridays at 13:15, in FB:41. If you can attend, do! Meeting others is important.
- I am always available for questions via email.
- In May there will be a lab session to illustrate some simple quantum computing algorithms. Students who are unable to participate in this can choose to write a short report on a topic that I select.

We will spend the first three weeks on chapter 1 of the notes, the next two on chapter 2, the next two on chapter 3, and the final three on chapter 4.)

Teaching. It is important that you realize that this is a correspondence course. It will work provided you send attempted solutions to the exercises to me. Otherwise it will not work. The examination will also be based on this, but it is OK, and indeed strongly recommended, that you send in attempted solutions even if they are not yet correct. If they are not correct I will provide suggestions, and you can try again, until I am satisfied. Feynman's rules for how to do physics exercises are in force:

1. Write down the problem.
2. Think very hard.
3. Write down the solution.

I expect you to do at least the first part before sending them to me.

Examination: In the end we just count the number of exercises and problems that you eventually managed to get correct: Grade F: 0 - 5, Grade Fx: 6 - 8, Grade E: 9 - 12, Grade D: 13 - 16, Grade C: 17 - 20, Grade B: 21 - 25 , Grade A: 26 - . There is, however, the extra requirement that for Grade B you have to include either Problem 1 or Problem 5. For Grade A you have to include both. The deadline is May 29, lunchtime. (The option to try again if I am not satisfied ends on May 26, lunchtime.) If you fail to meet the deadline you can take the reexam, which simply means that the deadline is moved to August 31, lunchtime.

Looking forwards to all the exercises,

Ingemar