

Seminar's title

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Abstract

Nice, small abstract detailing the method and the models which will be addressed in the lecture notes.

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1 Introduction

The stage is yours. Remember that the seminars are only two to four hours long and meant to focus on the small details of the method, not on the history behind them! Everything thing you cannot say during the lectures should come here. Fill the introduction with motivation, references and set the tone to for what comes next.

2 Applicability range

In this section, we should highlight the limitations and applicability range of the method. The reason why this comes first is that the reader should be able to quickly open the lectures and decide if the method can be applied to his/her problem or not.

3 Worked-example

Here you start by stating the non-trivial example you wish to tackle.

$$H = \sum_{j=1}^N \left[J(S_j^x S_{j+1}^x + S_j^y S_{j+1}^y + \Delta S_j^z S_{j+1}^z) - h S_j^z \right]. \quad (1)$$

Often a method can be splitted into smaller steps. These can include some preparatory steps, e.g. having to do a Jordan-Wigner transformation, or subsequent steps, e.g. the exact formulas can only be solved using numerical methods. All of these should be listed:

1. Apply Jordan-Wigner transformation.
2. ...
3. Numerically solve that ugly integrodifferential equation.

3.1 Jordan-Wigner

Sometimes a step might require some other method. If this is not too important or difficult, you don't have to fully explain everything but provide the necessary tools for the reader to use it.

3.2 ...

The goal of these seminars is to focus on the small details, so whenever you believe a certain step might pose difficulties to the reader you should highlight it!



3.3 Solving integrodifferential equation

Every numerical step should be accompanied with a Jupyter notebook (Jupyter also handles C++). During the seminar, the speaker should go carefully over the code and try to engage with the audience, e.g. filling missing parts or generating figures. Relevant parts of the code should be imported.

```
def inc(i):
    return i+1
```

4 Worked-example

You may think that a single complex example is not enough to encompass all the possible setbacks of the method. Feel free to another example!

5 Homework

At the end of each seminar, the participants will take a problem home to solve. This is important to solidify the knowledge acquired. The problem should consist of a small set of questions whose answers will not be part of the preprint version of the lecture notes. They will only be available in the final version. Participants are incentivized to e-mail the speaker with possible doubts and request the solution.

Acknowledgements

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References

- [1] W. G. Campbell *et al.*, *Form and Style: Theses, Reports, Term Papers. Up-to-Date Information on Chicago, MLA, and APA Documentation.*, ERIC (1990).