

Referee 1

1. Is there a need for a book on this subject at the proposed level? Is it appealing?

There is a need for a book on this subject on a level that is sufficiently rigorous to give a good foundation on understanding and modeling the generation of neuroelectric fields. The authors have the ambition to write the book so that it can be studied by people with different levels of background knowledge. Thus, there would be different levels in the book that can be studied partially separately: 1) fundamental bioelectric and biophysical basis for understanding and modeling electric brain signals; 2) a simple “operational version”; 3) applications-oriented part; 4) computer exercises and tutorials made available online as Python notebooks. The planned structure and its logic appear compelling.

2. Is the material presented in a logical manner? Can anything be removed without loss? Should anything be added in order to strengthen the book?

The plan suggests that the material will be presented in a logical manner. Chapter 6, however, as described in the plan, seems confusing. It is not clear why self-consistent schemes are not presented. The authors might consider starting with something that they can consider self-consistent and then provide approximate schemes without losing consistency.

A deficiency in the plan is that time constants are not mentioned even once although they are relevant both when interpreting recordings and in particular when analyzing the effect of electrical stimulation. The simplest is the membrane time constant (which will appear in the cable equation also in the present plan); more complicated but equally important are cellular time constants which are generally quite different from membrane time constants. Further, there are important time constants also on the more macroscopic level.

3. Is the subject area expanding, static or contracting? Is there a sufficient body of established knowledge for the book not to date too quickly?

I think this may be an expanding area, but the basic physics and physiology will remain the same and there is already sufficient body of knowledge and the authors certainly have a sufficient level of understanding so that they can produce a book that will not date quickly. It would be of value to write the book with great care so that its contents will not be outdated.

4. Can the material be covered adequately in the proposed length?

The intended length is not mentioned in the book proposal. Brevity would be a merit, in particular if most of the examples can be provided online.

5. Are you able to comment on the standing of the authors?

Prof. Einevoll is undoubtedly a world-class expert in the field and the rest of the authors are his students (two former, one present, and one former postdoctoral student). Pettersen and Hanes are established scientists, Ness maybe a rising star, and Naess is a student. The team will probably do a good job in writing the book.

6. Have the authors accurately identified any competing/overlapping books? Do you know of any other competing books from other publishers with potential overlap?

The analysis of the existing books on the topic is quite superficial and does not fully describe the unique features of the proposed book in comparison with the mentioned competition. Furthermore, not all relevant competing books are mentioned. For example, the book by Malmivuo and Plonsey (1995) is quite comprehensive and much used (cited 2883 times according to Google Scholar). In fact, there are many books on this topic. However, it appears that the authors will write a good book

that collects the present understanding of the topic and bundles the important features of the topic in a readable, pedagogically useful form.

Malmivuo, P., Malmivuo, J., & Plonsey, R. (1995). *Bioelectromagnetism: principles and applications of bioelectric and biomagnetic fields*. Oxford University Press, USA.