Interactive comment on "Continuum model of wave propagation in fragmented media: linear damping approximation" *by* Maxim Khudyakov et al.

Anonymous Referee #1

Received and published: 12 March 2017

The paper addresses the continuum model of wave propagation in fragmented media. The obtained results look interesting, new and of some significance in mechanical engineering. The paper in its major part fits current trends and standards for international scientific publications. Its presentation is clear and concise, includes reasonable number of figures of acceptable quality. The title fairly presents the main idea of the article, yet a few shortcomings as to its narration, English and context were found. On balance, whilst major part of the material can be appropriate for publication, additional work is still needed. In my point of view, the extent of the required changes can be considered as "minor to moderate revision". Detailed concerns follow.

–>THE VOIGHT MODEL. In general, any use of simple models is subject to serious

grounding. Although the paper includes a lot of speculation and very good and useful arguments in favor of the Voight model and its applicability, the narration is sometimes puzzling. The Abstract reads: "These assumptions lead to Kelvin-Voight model of wave propagation, . . .", which makes a feeling that the use of this very model will be substantially grounded after. At the same time, introduction of the model appears at p. 4 l.5 as "e.g., Kelvin-Voight model, with . . . ", which gives a feeling that it's just a choice from a long row of models applicable to the problem. And then nothing is said about other alternatives! By the way, the paper is silent about "uniform distribution of strain" - an assumption important for applicability of the Voight model, contrary to the Maxwell model assuming a "uniform distribution of stress". Nothing is said about more extended capabilities provided by the Zener model. Testing the whole set of available models is obviously beyond the scope of a single paper, but due consideration of their basics from the point of view of their applicability is a must. I would also encourage the authors to be more cautious with terms: e.g. contrary to the wording from the above cited sentence of Abstract, the Voight model is basically NOT the "wave propagation model", but is a helpful means for modeling viscoelasticity under certain conditions. This closing remark smoothly leads us to

–> THE USE OF ENGLISH. English is mostly OK except for some awkward sentences. Please proofread and perform the grammar check carefully. Just a few examples: (i) in the last sentence of p.1 the modifier of manner "in the presence of . . ." comes between the transitive verb "to create" and its direct object "an effect . . .", which makes it hard to read, (ii) "therein" would look much better than "there" in l.22 p.1, (iii) the use of "increasing damping" in l.15 of p.1 and then in similar cases is confusing in my point of view, (iv) the sentence "Consequently, ..." around l.15 p.4 lacks any expression of necessity I would expect (otherwise, I can't grasp the meaning). In general, I wouldn't recommend pricey editorial services, and encourage being more conservative and careful with the use of English.

–> PLEASE DELETE MISPRINTS!!! E.g.: Where are derivatives in the second order

differential equation (1) and boundary conditions p.2 l.17?

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