Review of paper AOAM-D-19-00352:

Revisit to the theoretical analysis of a classical piezoelectric vibration energy harvester

Maoying Zhou, Huijun Zhao

This paper is concerned with the modeling and analysis of piezoelectric vibration energy harvesting, assuming beam-like structures. It provides helpful analytical solutions in the context of a geometrically- and physically-linear formulation. It further offers asymptotic expansion analysis as a means to obtain approximations that allow much easier interpretation, e.g. regarding the interplay of key parameters on the output measures of central interest.

The paper is generally well-written and of strong scientific interest and content. It also clearly fits the scope of the Archive of Applied Mechanics.

Editorial issues:

i. Quite a few minor suggestions that the reviewer proposes regarding wording, formatting etc., can be found in the appended commented version of the manuscript.

Scientific content issues:

ii. My biggest concern is that the approach seems so straightforward and builds on rather simple (linear) constitutive and structural models that I am strongly suspecting something very similar must have been done before — although I have not conducted a comprehensive literature study to fully support this claim. Perhaps a more thorough literature overview could be added in the introduction, with a clear discussion on the short-comings of the state-of-the-art and how this contribution fills these gaps. So far, this is really only put in context of paper [17], by the Inman & Ertürk group(s).

iii. It would also be interesting to discuss the necessity of increasing the complexity of the underlying (linear) constitutive and structural models and the possible merit of the asymptotic expansion analysis in theses situations.

Recommendation: The reviewer suggests that minor modifications according to the comments above be made before the manuscript can be accepted.