Review of: "Negativity, zeros and extreme values of several polynomials"

Lara Vicino[1]

1 Technical University of Denmark

Potential competing interests: No potential competing interests to declare.

In the paper, the authors investigate the negativity/positivity and the zeros of certain polynomials. The main results of the paper are Proposition 1 and Proposition 2. For Proposition 1, two different proofs are provided: the first one is very computational, while the second one is based on Descartes' rule of signs. This last mentioned method is also exploited in the proof of Proposition 2.

The paper lacks a clear explanation of why the results presented are interesting. Also, it is not clear how the results fit in the more general picture of the already existing literature on the topic. For these reasons, I am not sure how to assess whether the results are interesting and on what topics in the literature they possibly shed a light on.

However, the techniques used for the proofs are interesting, although not new, therefore I think it might be worth trying to improve the paper by addressing the following two main points:

- adding a clear motivation: why is the investigation of such polynomials interesting?
- improving, in general, the presentation of the results, both on a general language perspective and on a conciseness perspective. For instance, in the first proof of Proposition 1 some computations could be omitted, and, more in general, some sentences could be reformulated in a clearer fashion. Two examples, that are repeated multiple times throughout the paper, are:

-- it should be "it has four real zeros in total" instead of "totally has four real zeros"

-- it should be "which is located in the open interval" instead of "which locates on the open interval".