Institut Supérieur de l'Aéronautique et de l'Espace
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Pr. Denis Matignon
Resp. U.F. Mathématiques Appliquées

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Editor of Applied Mathematical Modelling

Dear Sir,

Please find hereafter the answers to the reviews, together with the revised versions of the submitted companion papers:

Port-Hamiltonian formulation and symplectic discretization of plate models.

1. Part I: Mindlin model for thick plates.
2. Part II: Kirchhoff model for thin plates.

We gratefully acknowledge the reviewers for their constructive comments and suggestions.

We adopted all the indications of reviewer 2. Indeed, his review helped us present the results in a more coherent, rigorous and transparent manner. The redundant sections of Part I have been removed, as suggested. The exposition now is clearer for the reader.

For what concerns the synthetic comments of reviewer 1, we do understand the necessity of providing numerical evidence (comment n°1), in support to the consistency of new models. For this reason a totally new final section dedicated to the numerical part has been added to both papers. The results obtained with our method prove consistent with previously published material, assessing the validiy of the proposed models. However, we were not able to satisfy request n°2, asking for a complete reshaping of the papers structure. This recommendation could not be followed, as we believe that it would not significantly contribute to the improvement of the papers: furthermore, it would strongly collide with the recommendations made by reviewer 2.

Reviewer 1 asks (question n°3) about the computational efficiency of the proposed discretization method: details upon the numerical implementation were given. Yet, an accurate analysis of the finite element convergence property is more indicated for publication in a numerical analysis journal and out of our main scope. Reviewer 1 is also interested about possible insights about analytical solution given by the proposed formulations (question n°4). This is indeed the common topic of references suggested by reviewer 1, but definitely not ours. The proposed models are quite complex and require particular families of finite elements for the discretization. Even if the PH formulation for plate models provides no advantage in finding analytical solution, it is a very powerful instrument in modelling complex multi-physics systems. This so-called modularity feature is really appealing as industries now need to simulate complex processes.

We do hope that the revised manuscripts will be considered for publication in Applied Mathematical Modelling.

Yours Sincerely,

Professor Denis MATIGNON,
Head of Applied Mathematics group,
ISAE-SUPAERO.