

NUMERICAL ANALYSIS OF FINITE ELEMENT SYSTEMS MODELING ELASTIC STENTS

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A new model description for the numerical simulation of elastic stents is proposed. Based on the new formulation an \inf - \sup inequality for the finite element discretization is proved and the proof of the \inf - \sup inequality for the continuous problem is simplified. The new formulation also leads to faster simulation times despite an increased number of variables. The techniques also simplify the analysis and numerical solution of the evolution problem describing the movement of the stent under external forces. The results are illustrated via numerical examples, see [1].

References

- [1] L. Grubišić, M. Ljulj, V. Mehrmann, and J. Tambača, Modeling and discretization methods for the numerical simulation of elastic stents, <https://arxiv.org/1812.10096>, Preprint 01-2019, Institute of Mathematics, TU Berlin, submitted for publication, 2019.