The beauty of isogeometric Boundary Elements

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ABSTRACT

The boundary element method (BEM) and CAD are ideally suited to each other because both use a boundary representation. In the paper it will be shown that the BEM not only benefits from the accurate description of the geometry by NURBS patches, with few parameters and without mesh generation, but also from using NURBS for the approximation of the unknowns. On a number of examples it is demonstrated that excellent and even sometimes exact results can be obtained with very few unknowns. The examples range from problems in solid mechanics (including nonlinear material behaviour) to problems in potential and viscous fluid flow. A particular nice application is the simulation of free surface flow, where the flow surface is iteratively refined using a NURBS curve with only 3 parameters.

Further details can be found in [1, 2, 3, 4, 5].

REFERENCES

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