

# Efficient assembly based on B-spline tailored quadrature schemes for IgA-BEM applications

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## ABSTRACT

The problem of an efficient implementation of 2D Boundary Element Methods within the Isogeometric paradigm is here addressed. IgA-BEMs have been already investigated in [1, 2] and have the great advantage that only the description of the boundary is needed as all the computation is made on the boundary. On the other hand, since the differential problem is reformulated as linear Boundary Integral Equations, singular integrals occur. Hence the focus of our present research is to construct appropriate, accurate and efficient quadrature rules dealing also with singularities. The proposed approach uses some of the properties of B-splines - local support, global regularity, recursive formulae and interpolation properties - in order to gain optimal convergence rate and good ratio between computational effort and accuracy, [3]. Key ingredients are weighted quadrature rules tailored for B-splines [4, 5], that are constructed to be exact in the whole test space, also with respect to the singular kernel.

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