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# IGA-BEM for 2D Lifting Flows

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Combining Iso-Geometric Analysis (IGA) with Boundary Element Methods (BEM) for 2D hydrofoils, moving with constant speed in an ideal fluid of infinite extent, imposes a number of difficulties. Firstly, an IGABEM collocation scheme has to take into account the unit-tangent-vector discontinuity occurring along the trailing edge (TE). More important, the scheme has to handle the Kutta condition, securing continuity of the normal velocity and pressure through the a-priori unknown wake, a force-free boundary surface emanating from the TE.

In this presentation we shall present and compare a number of IGABEM collocation schemes that employ different types of Kutta conditions, starting from the so-called *Morino-Kutta* condition [1] and opting for more complex ones, imposing a-priori zero-pressure jump at the TE. Comparisons will include the behavior of the pressure coefficient in the neighborhood of the TE as well as circulation's convergence rate.

[1] K.V. Kostas, A.-A,I. Ginnis, C.G. Politis and P.D. Kaklis, Shape-optimization of 2D hydrofoils using an Isogeometric BEM solver, *Computer-Aided Design*, Vol. 82, pp. 79-87, 2017.