Contribution ID: **37**   Type: **Poster**

Anti-Gauss cubature rules with applications to Fredholm integral equations on the square

Monday, 20 January 2025 16:00 (2 hours)

We introduce the anti-Gauss cubature rule for approximating integrals defined on the square whose integrand function may have algebraic singularities at the boundaries. An application of such a rule to the numerical solution of Fredholm integral equations of the second-kind is also explored. The stability, convergence, and conditioning of the proposed Nystr\"om-type method are studied. The numerical solution of the resulting dense linear system is also investigated and several numerical tests are presented.

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Session Classification: Poster Session