Monotonicity and discretization of integral operators

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We provide sufficient conditions for vector-valued Fredholm or Urysohn integral operators to be monotone in terms of an order relation induced by a corresponding order cone. We also provide conditions guaranteeing that monotonicity is preserved under the Nyström type discretization for Fredholm and Urysohn integral operators. We present examples of semi-disceretization that monotonicity is violated for Fredholm operators.

References

[1] M. Nockowska-Rosiak, C. Pötzsche, Monotonicity and discretization of Urysohn integral operators, *Applied Mathematics and Computation*, **414**(2022), art. 126686.

[2] M. Nockowska-Rosiak, C. Pötzsche, Positivity and discretization of Fredholm integral operators, *submitted*.