# A NOTE ON NUMERICAL RADIUS
# AND THE KREĬN-LIN INEQUALITY

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**Abstract.** In this note we show that the Kreĭn-Lin triangle inequality can be naturally applied to obtain an elegant reverse for a classical numerical radius power inequality for bounded linear operators on complex Hilbert spaces, due to C. Pearcy.

**MSC 2010.** 47A63.

**Key words.** Triangle inequality, operator norm, numerical radius.

## REFERENCES

[1] S.S. Dragomir, *Some Grüss type inequalities in inner product spaces*, JIPAM, **4** (2003), 1–10.

[2] S.S. Dragomir, *Inequalities for the numerical radius of linear operators in Hilbert spaces*, Springer Briefs in Mathematics, Springer, Cham, 2013.

[3] K.E. Gustafson and D.K.M. Rao, *Numerical range*, Springer-Verlag, New York, 1997.

[4] P.R. Halmos, *A Hilbert space problem book* (second edition), Springer-Verlag, New York, 1982.

[5] M.K. Kreĭn, *Angular localization of the spectrum of a multiplicative integral in a Hilbert space*, Funct. Anal. Appl., **3** (1969), 89–90.

[6] M. Lin, *Remarks on Kreĭn's inequality*, Math. Intelligencer, **34** (2012), 3–4.

[7] C. Pearcy, *An elementary proof of the power inequality for the numerical radius*, Michigan Math. J., **13** (1966), 289–291.

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