

SCHATTEN PROPERTIES, NUCLEARITY AND MINIMALITY OF PHASE SHIFT INVARIANT SPACES

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We extend Feichtinger's minimality property on smallest non-trivial time-frequency shift invariant Banach spaces, to the quasi-Banach case. Analogous properties are deduced for certain matrix classes.

We use these results to prove that the pseudo-differential operator $\text{Op}(a)$ is a Schatten- q operator from M^∞ to M^p and r -nuclear operator from M^∞ to M^r when $a \in M^r$ when $p, q \in (0, \infty]$ and $r \in (0, 1]$ satisfy

$$\frac{1}{r} - 1 \geq \max\left(\frac{1}{p} - 1, 0\right) + \max\left(\frac{1}{q} - 1, 0\right) + \frac{1}{q}.$$

We also present extensions of these results involving weighted modulation spaces.

REFERENCES

- [1] J. Toft *Schatten properties, nuclearity and minimality of shift invariant spaces* (preprint), arXiv:1605.03042.

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