PSEUDO-DIFFERENTIAL AND TOEPLITZ OPERATORS ON AN EXTENDED FAMILY OF MODULATION SPACES

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The talk is based on [2], with some pre-studies in [1]. We consider a broad family of modulation spaces of Gelfand-Shilov distributions. We show that the Bargmann transform is bijective from such modulation spaces to (weighted) Lebesgue spaces of analytic functions. In this context we permit "extreme weights" meaning that we permit distributions and/or their Fourier transforms to grow almost like Gauss functions (almost growth like $Ce^{C|x|^2}$ for some positive constant C). We show that these weighted spaces posses convenient properties. For example that they are Banach spaces, fulfills canonical density and duality properties. We also discuss continuity properties for pseudo-differential and Toeplitz operators when acting on modulation and Gelfand-Shilov spaces. In this context we also consider isomorphism properties for pseudo-differential and Toeplitz operators, when acting on modulation spaces.

REFERENCES

[1] M. Signahl, J. Toft Mapping properties for the Bargmann transform on modulation spaces *J. Pseudo-Differ. Oper.* **3** (2012) 1–30.

[2] J. Toft The Bargmann transform on modulation and Gelfand-Shilov spaces, with applications to Toeplitz and pseudo-differential operators. *J. Pseudo-Differ. Oper.* (appeared online 2011).

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