

## MULTIVARIABLE BESSEL GABOR TRANSFORM AND APPLICATIONS

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*Abstract.* In this paper we consider multivariable Bessel operator. We define and study the multivariable Bessel Gabor transform. We prove a Plancherel formula, an inversion formula and a weak uncertainty principle for it. As applications, an analog of Heisenberg's inequality is obtained. At the end, we give an application of the theory of reproducing kernels to the Tikhonov regularization on the generalized Sobolev spaces associated with the multivariable Bessel operator.

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