

## On the Entangled Fractional Fourier Transform in Tripartite Entangled State Representation

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**Abstract:** Based on the newly constructed two mutually conjugate 3-mode entangled states of continuum variables in three-mode Fock space we introduce entangled fractional Fourier transform (EFFT) for the tripartite entangled state representations, which are not a direct product of three 1-dimensional FFTs. The eigenmodes of EFFT are obtained, which is different from the usual Hermite polynomials. The EFFT of the three-mode squeezed state is derived.

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**Key words:** entangled fractional Fourier transform, entangled state, eigenmodes

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