# The V-Line Radon Transform and its Biomedical Imaging Applications.

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Single scattering optical tomography uses light, transmitted and scattered through the body, to recover the optical properties of the soft tissues. Using collimated emitters and receivers, one can measure the intensity of light scattered along various broken rays corresponding to the paths of such photons. These measurements are then used to recover the spatially varying coefficients of light absorption and/or light scattering. The latter task is mathematically equivalent to the problem of inversion of the Radon transform integrating along V-shaped broken rays [1-3]. There has been a substantial spike of interest towards these problems in the last decade mainly due to the connection between the Radon transform and mathematical models arising in biomedical imaging. In this presentation, we consider the transform that integrates a function f over a family of broken rays invariant to translation. A new exact inversion formula is presented in the case of fixed opening angle and vertical central axis. In addition, the results of numerical simulations are presented to demonstrate the efficiency of the suggested algorithm in 2D [4,5].

## References

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