SOME RADON TRANSFORMS AND THEIR DISCRETE ANALOGUES

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We report some progress on certain Radon transforms and some discrete analogues, such as the bilinear Hilbert transforms along curves, discrete Strichartz estimates and their relation with weighted restriction, etc. The bilinear Hilbert transforms along curves arise from Fourier analysis and PDE, and their discrete analogues are closely related to pointwise convergence of bilinear dynamic system in Ergodic theory. The discrete Strichartz estimate is the dual of discrete Fourier restrcition. It plays a crucial role in establishing the well-posedness of some dispersive equations. Moreover, it has a close relation to Waring's problem in number theory.