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**Operator identities relating sonar and Radon transforms.**

A sonar transform in the plane averages continuous compactly supported functions over circles centered on a curve, called the *centerset*. A particularly interesting example of a centerset is a straight line, say, the  $x$ -axis. In 1999 Denisjuk used stereographic projection to convert integrals over circles centered on a line into integrals over chords in a unit disk thereby establishing the first sonar-Radon relation. I will show how the same sonar transform can be related to the classical Radon transform in a novel way. The identities, derived jointly with D. Feldman of UNH, are based on fractional calculus and geometry and can be extended to other centersets.