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Giovanni S. Alberti, Francesca Bartolucci* (francesca.bartolucci@sam.math.ethz.ch),
Filippo De Mari and **Ernesto De Vito**. *Unitarization and Inversion Formulae for the Radon Transform Between Dual Pairs*.

We consider the Radon transform associated to dual pairs (X, Ξ) in the sense of Helgason, with $X = G/K$ and $\Xi = G/H$, where G is a locally compact group and K and H are closed subgroups of G . We prove that if the quasi-regular representations of G acting on $L^2(X)$ and $L^2(\Xi)$ are irreducible, then the Radon transform admits a unitarization intertwining the two representations. If, in addition, the representations are square-integrable, we provide an inversion formula for the Radon transform based on the voice transform associated to these representations. We further show how our general construction applies to the classical Radon and X-ray transforms in the Euclidean space. (Received January 24, 2022)