Isometries and transformations of solutions for equations describing pseudo-spherical surfaces

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Abstract. Equations describing pseudospherical surfaces are characterized by the fact that their generic solutions provide metrics on a nonempty open subsets of $\mathbb{R}^2$, with Gaussian curvature $K = -1$. These equations can also be seen as the compatibility condition of an associated $\mathfrak{sl}(2, \mathbb{R})$-valued linear problem, which is referred to as a zero curvature representation. In this talk we will discuss some new results on the use of isometries of pseudo-spherical surfaces to construct explicit solutions for such equations.