Isoparametric surfaces in $\mathbb{E}(\kappa, \tau)$-spaces

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Abstract. We provide an explicit classification of the following four families of surfaces in any homogeneous 3-manifold with 4-dimensional isometry group: isoparametric surfaces, surfaces with constant principal curvatures, homogeneous surfaces, and surfaces with constant mean curvature and vanishing Abresch–Rosenberg differential.