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Johnathan R Marquardt* (marquardtjohnathan@gmail.com), 322 Marble street, Joliet, IL 60435. *A Partial Characterization of the Symmetric Spaces of the Unitary Group of Degree Two and Three*. Preliminary report.

This work presents a characterization of specific symmetric spaces of the 2nd degree unitary group, $U(2)$, as well as a characterization of all matrices in $U(2)$. Moreover, the generalized and extended symmetric spaces of $U(2)$ given by inner automorphisms are characterized. Structure and conditions for unitary matrices to be in these symmetric spaces are established through a parameterization of $U(2)$. This work contributes to the ongoing process of characterizing these symmetric spaces. (Received September 22, 2017)