Totally geodesic isometries between bounded symmetric domains

Let Ω and Ω′ be two bounded symmetric domains. In this talk, we investigate the properties of totally geodesic isometric embedding $f : \Omega \rightarrow \Omega'$ with respect to Bergman/Kobayashi metric. In particular, we discuss the question of holomorphicity of sufficiently smooth totally geodesic isometric polydisc $f : \Delta^q \rightarrow \Omega$. As an application, we give a sufficient condition for a totally geodesic isometric embedding $f : \Omega \rightarrow \Omega'$ to be holomorphic or anti-holomorphic in terms of the rank difference, when Ω and Ω′ are irreducible. This is a joint work with Aeryeong Seo.