Rigidity for local holomorphic isometries from
$\mathbb{B}^n$ into $\mathbb{B}^{N_1} \times \cdots \times \mathbb{B}^{N_m}$

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I will talk about the rigidity for a local holomorphic isometric embedding from $\mathbb{B}^n$ into $\mathbb{B}^{N_1} \times \cdots \times \mathbb{B}^{N_m}$ with respect to the normalized Bergman metrics. Each component of the map is a multi-valued holomorphic map between complex Euclidean spaces by Mok’s algebraic extension theorem. By using the method of the holomorphic continuation and analyzing real analytic subvarieties carefully, we show that a component is either a constant map or a proper holomorphic map between balls. Hence the total geodesy of non-constant components follows from a linearity criterion of Huang. In fact, the rigidity is derived in a more general setting for a local holomorphic conformal embedding. This is a joint work with Yuan Zhang.