1078-32-125 **Shuzo Izumi***, 415-5 Kohmyo, Ikoma, Nara 630-0201, Japan. *Higher order tangent spaces of an embedded complex manifold and Taylor projectors.*

Given a finite dimensional vector space Z of holomorphic functions on an open subset $U \subset \mathbb{C}^n$, we define a projector from the algebra $\mathcal{O}_{\boldsymbol{b}}$ of holomorphic functins at $\boldsymbol{b} \in U$ onto the space $Z_{\boldsymbol{b}} \subset \mathcal{O}_{\boldsymbol{b}}$ of germs of elements of Z at $\boldsymbol{b}$. First we prove that $Z_{\boldsymbol{b}}$ has a structure of factor algebra of $\mathcal{O}_{\boldsymbol{b}}$ at a general point $\boldsymbol{b}$. Using this projector, we define the Taylor expansion of order d for the functions on an embedded submanifold $X \subset \mathbb{C}^m$ at a general point. These generalise the results of Bos and Calvi on an plane algebraic curve. To show this, we need a special kind of higher order tangent space of X. The growth of this space with respect to the order measures local simplicity of the embedding. We obtain a zero-estimate formula for analytic functions. This implies that X is embedded in $\mathbb{C}^m$ in not highly transcendental manner excepting points of a set of Lebesgue measure 0 in X.

(Received December 01, 2011)