

$p_1 \cdots p_n$ hom poly

$$\mathcal{M} = \frac{z \in \mathbb{P}(\mathbb{C}^N)}{z p_0 = \cdots = z p_n = 0}$$

$dp_0 \wedge \cdots \wedge dp_n \neq 0$ on \mathcal{M}

$$\dim_z \mathcal{M} = N - n$$

$$3_{\mathbb{C}}^0 = \frac{z:w \in \mathbb{P}^{3:3}}{\sum_i z^i w^i = \sum_i (z^i)^3 = \sum_i (w^i)^3 = 0}$$