of divisors on M. Since M is compact, $(s)=(s')$ only if $s=\lambda s'$ for some nonzero constant $\lambda \in \mathbb{C}$; thus $|E|$ is parametrized by the projective space $\mathbb{P}(E)$.

Suppose in addition that the linear system $|E|$ has no base points, i.e., that not all $s \in E$ vanish at any point $p \in M$. Then for each $p \in M$ the set of sections $s \in E$ vanishing at p forms a hyperplane $\tilde{H}_p \subset E$ — or, equivalently, the set of divisors $D \in |E|$ containing p forms a hyperplane H_p in $\mathbb{P}(E)$ — and so we can define a map

$$\iota_E : M \longrightarrow \mathbb{P}(E)^*,$$

by sending $p \in M$ to $H_p \in \mathbb{P}(E)^*$.

「 $K =$ set of all sections $s \in E$ vanishing at p
σ a section not vanishing at p.
Given $s \in E$, s.t $s(p) = \lambda\sigma(p)$, for some constant λ,
$s - \lambda\sigma \in E$.

$\Rightarrow \dim K = \dim E - 1 \Rightarrow K$ is a hyperplane.

$$\begin{aligned} \iota_E : M &\longrightarrow \mathbb{P}(E)^* \\ p &\longmapsto H_p \end{aligned}$$

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We can describe the map ι_E more explicitly as follows. Choose a basis $s_0, s_1, \cdots s_N$ for E. If we let $s_{i,\alpha} = \varphi_\alpha^*(s_i) \in \mathcal{O}(U)$ for any trivialization φ_α of L over an open set $U \subset M$, it is clear that the point $[s_{0,\alpha}(p), \cdots s_{N,\alpha}(p)] \in \mathbb{P}^N$ is independent of the trivialization φ_α chosen; we denote this point by $[s_0(p), \cdots s_N(p)]$. In terms of the identificat