$\varphi(h^{-1}\frac{\partial}{\partial z}) = h^{-1}\bar{a}h^{2} = 1 \qquad \bar{a} = h^{-1}.$

since $\langle h^{-1}\frac{\partial}{\partial z}, h^{-1}\frac{\partial}{\partial z}\rangle = 1. \qquad \varphi(\frac{\partial}{\partial z}) = h \Rightarrow \varphi = h\,dz.$

$\Rightarrow d\varphi = \bar\partial h \wedge dz = \frac{\bar\partial h}{h} \wedge \varphi. \Rightarrow \psi'' = \bar\partial \log h.$

$\Rightarrow \psi = (\bar\partial - \partial)\log h. \Rightarrow \theta = -{}^t\psi = -(\bar\partial-\partial)\log h$

$= (\partial - \bar\partial)\log h.$

$= \frac{\partial \log h}{\partial z} dz - \frac{\partial \log h}{\partial \bar z} d\bar z.$

Since, $\theta \wedge \theta = 0$, by the Cartan structure equation

$$\Theta = d\theta = -2\left(\frac{\partial^2}{\partial z \partial \bar z}\log h\right) dz \wedge d\bar z.$$

$$\left(\bar\partial \frac{\partial \log h}{\partial z}\right) dz - \left(\partial\left(\frac{\partial \log h}{\partial \bar z}\right)\right) d\bar z = -\frac{1}{2}\left(\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}\right)\log h \quad dz\wedge d\bar z = -\frac{1}{2}\Delta \log h \cdot dz \wedge d\bar z$$

$\Rightarrow$ By comparing the curvature "matrix" Θ with the associated (1,1)-form $\Phi = \frac{i}{2}\varphi \wedge \bar\varphi = \frac{i}{2}h^2 dz \wedge d\bar z$,

we get $i\,\Theta = K \cdot \Phi$ where $K = \frac{-\Delta \log h}{h^2}$ is the usual Gaussian curvature.

② $E \longrightarrow M$ hermitian bundle., $S \subset E$ holo subble.
$Q = E/S$ quotient bundle.

$S^\perp$ has a hermitian structure and $S^\perp$ is not a holo subbundle of E

According to p71 (See Milnor p28), Q is isomorphic, as a C^∞ v.b., to the orthogonal complement $S^\perp$ of S in E.
$\Rightarrow$ Both S and Q inherit hermitian structures from E:
Let D_E, D_S & D_Q corresponding metric connections.