

Since $*$ is an algebraic operator, not differential operator. 202

$$\Rightarrow \partial^*(f \varphi_z \wedge \bar{\varphi}_j) = - \sum \bar{\partial}_k \bar{c}_k (f \varphi_z \wedge \bar{\varphi}_j) \text{ at } z_0.$$

$$= - \sum \bar{\partial}_k f \bar{c}_k (\varphi_z \wedge \bar{\varphi}_j) \text{ at } z_0.$$

Thus $[\wedge, \bar{\partial}] \stackrel{?}{=} -\bar{c} \partial^*.$

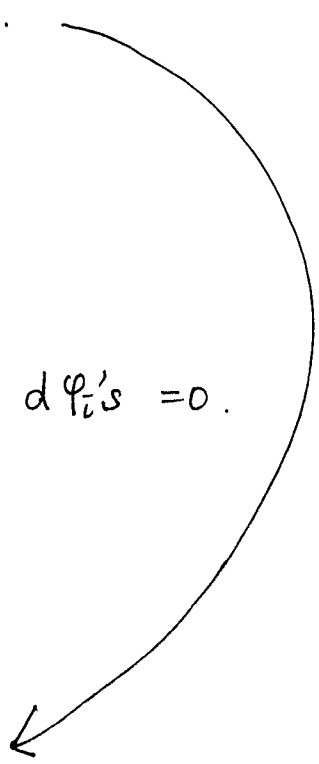
On \mathbb{C}^n , $[\wedge_E, \bar{\partial}_E] = -\bar{c} \partial_E^*$

Question is $[\wedge, \bar{\partial}] = -\bar{c} \partial^*$ on M ?

Choose $\{\varphi_1, \dots, \varphi_n\}$ s.t. at z_0 , $d\varphi_i = 0$.

$$\Rightarrow \wedge \partial = \wedge_E \partial_E \text{ at } z_0.$$

$$\partial \wedge = \partial_E \wedge_E \text{ at } z_0$$

and, $-\bar{c} \partial_E^* = -\bar{c} \partial \text{ at } z_0.$ 

⌈ Let's make more clear. on next pages. ⌋