$$(\bar\partial T^0_\Delta)(\varphi) = (-1)^{2n+1} T^0_\Delta(\bar\partial\varphi) = (-1)^{2n+1} T^0_\Delta(d\varphi)$$

(since φ is a form of type $(n, n-1)$.)

$$= (-1)\, T^0_{\partial\Delta}(\varphi) = 0, \text{ by } \partial\Delta = \phi.$$

$\Rightarrow$ T^0_Δ is $\bar\partial$-closed.

$$\mathcal{D}^{n,0}(M^2) \xrightarrow{\bar\partial} \mathcal{D}^{n,1}_{\wedge}(M^2) \xrightarrow{\bar\partial} \mathcal{D}^{n,2}(M\times M) \to$$

meaning the complex of currents.

By the result on p385,

$$H^{n,n}_{\bar\partial}(M^2) \longrightarrow H^n(\mathcal{D}^{n,*}, \bar\partial)$$
$$\eta^0_\Delta \longmapsto T_{\eta^0_\Delta}$$

is an isomorphism.

$$\eta^0_\Delta \in H^{n,n}_{\bar\partial}(M^2) \qquad \eta^0_\Delta = [\varphi^0_\Delta], \quad \varphi^0_\Delta = \sum_{q,\mu} (-1)^q \varphi_{0,q,\mu,\mu}$$
$$= \sum_{q,\mu} (-1)^q \pi_1^*\psi_{0,q,\mu} \wedge \pi_2^*\psi^*_{n,n-q,\mu} \Cap A^{(0,*)(n,n-*)}$$

Consider the current T defined by

Wrong!!

$$T(\omega) = \int_{M\times M} \varphi^0_\Delta \wedge \omega$$
$$= \int_{M\times M} \varphi^0_\Delta \wedge \omega^{(n,n-*)(0,*)} = \int_{M\times M} \varphi^0_\Delta \wedge \sum_q \omega^{(n,n-q)(0,q)}$$
$$= \int_\Delta \sum_q \omega^{(n,n-q)(0,q)} = T^0_\Delta(\omega)$$
$$= \int_{M\times M} \varphi_\Delta \wedge \sum_q \omega^{(n,n-q)(0,q)}$$

since $\varphi_{p,q,\mu,\mu} = \pi_1^*\psi_{p,q,\mu}\wedge\pi_2^*\psi^*_{n-p,n-q,\nu} \Cap A^{(p,q)(n-p,n-q)}$

$$\| \int_\Delta \sum_q \omega^{(n,n-q)(0,q)}$$

and if $p \neq 0$, $\varphi_{p,q,\mu,\mu} \wedge \sum_q \omega^{(n,n-q)(0,q)} = 0$.

(*) Here $T^0_\Delta(\varphi)$ is defined by $T^0_\Delta(\varphi) = \sum\int_\Delta \varphi^{(n,n-*)(0,*)}$, so we can not write $T^0_\Delta(\varphi) = \int_{M\times M}\psi\wedge\varphi$, for some form ψ