The q th Chern polynomial is then

$$C_q(\Theta) = \left(\frac{\sqrt{-1}}{2\pi}\right)^q \left\{ \sum_{\alpha_1<\cdots<\alpha_q} \left(\frac{1}{q!}\sum_\pi \operatorname{sgn}\pi\ \Theta^{\alpha_1}_{\alpha_{\pi(1)}}\wedge\cdots\wedge\Theta^{\alpha_q}_{\alpha_{\pi(q)}}\right)\right\}$$

$$= \left(\frac{\sqrt{-1}}{2\pi}\right)^q (-1)^{q(q-1)/2} \sum_{\substack{\alpha_1<\cdots<\alpha_q\\ \mu_1<\cdots<\mu_q}} \frac{\operatorname{sgn}\pi}{q!}\, A^{\alpha_1}_{\mu_1}\wedge\cdots\wedge \bar{A}^{\alpha_{\pi(1)}}_{\mu_1}\wedge\cdots\wedge\bar{A}^{\alpha_{\pi(q)}}_{\mu_q}$$

$$= (\sqrt{-1})^{q^2}\sum_{\mu=(\mu_1\cdots\mu_q)} \eta_\mu\wedge\bar{\eta}_\mu,$$

where $\eta_\mu = \left(\frac{1}{2\pi}\right)^q \frac{1}{q!}\sum_{\substack{\alpha_1<\cdots<\alpha_q\\ \pi}} \operatorname{sgn}\pi\cdot A^{\alpha_{\pi(1)}}_{\mu_1}\wedge\cdots\wedge A^{\alpha_{\pi(q)}}_{\mu_q}$

is a form of type $(q,0)$. It follows that

$$\int_Z c_q(\Theta) \geq 0$$

for any q-dimensional analytic subvariety Z in M.

⌈ According to p402,

$$p^q(A) = \sum_{\#I=q} \det(A_{I,I})$$

$$= \sum_{\alpha_1<\cdots<\alpha_q}\sum_\pi \overset{\operatorname{sgn}\pi}{\overset{\parallel}{\epsilon(\pi)}}\ a_{\alpha_1 \alpha_{\pi(1)}} \cdots a_{\alpha_q \alpha_{\pi(q)}}$$

$$\Rightarrow\ C_q(\Theta) = P^q\left(\frac{\sqrt{-1}}{2\pi}\Theta\right) = \sum_{\#I=q} \det\left(\frac{\sqrt{-1}}{2\pi}\Theta_{I,I}\right)$$

$$= \left(\frac{\sqrt{-1}}{2\pi}\right)^q \sum_{\#I=q}\det(\Theta_{I,I}) = \left(\frac{\sqrt{-1}}{2\pi}\right)^q \sum_{\alpha_1<\cdots<\alpha_q}\sum_\pi \operatorname{sgn}\pi\ \Theta^{\overset{\text{row}}{\alpha_1}}_{\underset{\text{column}}{\alpha_{\pi(1)}}}\wedge\cdots\wedge\Theta^{\alpha_q}_{\alpha_{\pi(q)}}$$

$$= \left(\frac{\sqrt{-1}}{2\pi}\right)^q \sum_{\alpha_1<\cdots<\alpha_q}\sum_\pi \operatorname{sgn}\pi \sum_{\mu_1\cdots\mu_q} A^{\alpha_1}_{\mu_1}\wedge\bar{A}^{\alpha_{\pi(1)}}_{\mu_1}\wedge A^{\alpha_2}_{\mu_2}\wedge\bar{A}^{\alpha_{\pi(2)}}_{\mu_2}\wedge\cdots\wedge A^{\alpha_q}_{\mu_q}\wedge\bar{A}^{\alpha_{\pi(q)}}_{\mu_q}$$