「 As far as I understand, the authors confuse me on this Bochner-Martinelli kernel.

$$\int_{\|z\|=\epsilon} F^*k(z) = \int_{\|z\|=\epsilon} k(z+f(z), z) = \int_{\|z\|=\epsilon} C_n \frac{\sum (-1)^{i-1} \bar{f}_i \, d\bar{f}_1 \wedge \cdots \wedge \widehat{d\bar{f}_i} \wedge \cdots d\bar{f}_n \wedge dz_1 \wedge \cdots \wedge dz_n}{\|f(z)\|^{2n}}$$

$$= \int_{\|z\|=\epsilon} C_n \frac{\sum (-1)^{i-1} \bar{f}_i \, d\bar{f}_1 \wedge \cdot \widehat{d\bar{f}_i} \wedge dz_1 \wedge \cdots \wedge dz_n \, J_f(z)}{\|f(z)\|^{2n} \, J_f(z)}$$

$$= \int_{\|z\|=\epsilon} C_n \frac{\sum (-1)^{i-1} \bar{f}_i \, d\bar{f}_1 \wedge \cdot \widehat{d\bar{f}_i} \wedge \cdots \wedge df_1 \wedge \cdots \wedge df_n}{\|f(z)\|^{2n} \, J_f(z)}$$

$$= \int_{\|f(z)\|=\epsilon'} C_n \frac{\sum (-1)^{i-1} \bar{f}_i \, d\bar{f}_1 \wedge \cdot \widehat{d\bar{f}_i} \wedge \cdots \wedge df_1 \wedge \cdots \wedge df_n}{\|f((z))\|^{2n} \, J_f(z)} = J_f(0)^{-1} = \frac{1}{J_f(0)}.$$

where $J_f(0) \neq 0$. 」

We now know that for any type of isolated fixed point,

$$\int_{\|z\|=\epsilon} F^*k = \mathrm{Res}_{\{0\}}\left(\frac{dz_1 \wedge \cdots \wedge dz_n}{f_1(z) \cdots f_n(z)}\right).$$

This leads to a corresponding extension of the holomorphic Lefschetz theorem.

「 Not for any type of isolated fixed point, but for $J_f(0) \neq 0$. $\int_{\|z\|=\epsilon} F^*k = \int_{\|z\|=\epsilon} g^{-1}\eta_\omega = \frac{1}{J_f(0)} = \mathrm{Res}_{\{0\}}\Big(\frac{dz_1 \wedge}{f_1(z) \cdots}$