

$$\mathbb{C}_{\Delta}^2 \mathbb{C} = \frac{\gamma \in \mathbb{C}_{\Delta} \mathbb{C}}{\int_{dw/\pi}^{\mathbb{C}} e^{-w\bar{w}} \frac{2}{\gamma} < +\infty}$$

$$\gamma \bar{\gamma} = \int_{dw/\pi}^{\mathbb{C}} e^{-w\bar{w}} w \bar{w} \gamma$$

$$\mathbb{C}_{\Delta}^2 \mathbb{C} \ni e^{z\bar{w}}$$

$${}^z \mathcal{L}^n = \frac{z^n}{\sqrt{n!}} \text{ ONB}$$

$${}^z \mathcal{E}_w = e^{z\bar{w}}$$

$$\text{LHS} = \sum_n^{\mathbb{N}} {}^z \mathcal{L}^n w \bar{w}^n = \sum_n^{\mathbb{N}} \frac{z^n}{\sqrt{n!}} \frac{\bar{w}^n}{\sqrt{n!}} = \sum_n^{\mathbb{N}} \frac{z^n \bar{w}^n}{n!} = \text{RHS}$$

$$\int_{d\zeta/\pi}^{\mathbb{C}} e^{-\zeta\bar{\zeta}} e^{z\bar{\zeta}} e^{\zeta\bar{w}} = e^{z\bar{w}}$$

$$\int_{d\zeta/\pi}^{\mathbb{C}} e^{-\zeta\bar{\zeta}} e^{z\bar{\zeta}} e^{\zeta\bar{z}} = \int_{d\zeta/\pi}^{\mathbb{C}} e^{-(\zeta-z)\bar{\zeta}-z} e^{z\bar{z}} = e^{z\bar{z}} \int_{d\zeta/\pi}^{\mathbb{C}} e^{-(\zeta-z)\bar{\zeta}-z} = e^{z\bar{z}}$$

$$\text{LHS} = \int_{d\zeta/\pi}^{\mathbb{C}} e^{-\zeta\bar{\zeta}} \sum_m^{\mathbb{N}} \frac{(z\bar{\zeta})^m}{m!} \sum_n^{\mathbb{N}} \frac{(\zeta\bar{w})^n}{n!} = \sum_m^{\mathbb{N}} \frac{z^m}{m!} \sum_n^{\mathbb{N}} \frac{\bar{w}^n}{n!} \int_{d\zeta/\pi}^{\mathbb{C}} e^{-\zeta\bar{\zeta}} \bar{\zeta}^m \zeta^n = \sum_m^{\mathbb{N}} \frac{1}{m!} \sum_n^{\mathbb{N}} \frac{1}{n!} \delta_m^n n! = \text{RHS}$$

$${}^z \overline{\mathcal{P}} \gamma = {}^z \overline{\mathcal{E}} \Big|_{\mathbb{C}} \gamma = {}^z \mathcal{E} \Big|_{\mathbb{C}} \gamma = \int_{dz/\pi}^{\mathbb{C}} e^{-w\bar{w}} {}^z \mathcal{E}_w w \gamma$$

$$z^\gamma = \int_{dw/\pi}^{\mathbb{C}} e^{-w\bar{w}} e^{z\bar{w}} w^\gamma = \mathcal{E}_z \star \gamma$$

$$z^\gamma = z^n \gamma \sum_n^{\mathbb{N}}$$

$$\frac{z^2}{n} \gamma \sum_n^{\mathbb{N}} < +\infty$$

$$\begin{aligned} \int_{dw/\pi}^{\mathbb{C}} e^{-w\bar{w}} e^{z\bar{w}} w^\gamma &= \int_{dw/\pi}^{\mathbb{C}} e^{-w\bar{w}} e^{z\bar{w}} \underbrace{w^n \gamma \sum_n^{\mathbb{N}}}_{dw/\pi} = \int_{dw/\pi}^{\mathbb{C}} e^{-w\bar{w}} e^{z\bar{w}} w^n \gamma \sum_n^{\mathbb{N}} \\ &= \sum_m^{\mathbb{N}} \frac{z^m}{m!} \int_{dw/\pi}^{\mathbb{C}} e^{-w\bar{w}} \bar{w}^m w^n \gamma \sum_n^{\mathbb{N}} = \sum_m^{\mathbb{N}} \frac{z^m}{m!} \delta_m^n n! \gamma \sum_n^{\mathbb{N}} = \frac{z^n}{n!} \gamma n! \sum_n^{\mathbb{N}} = z^n \gamma \sum_n^{\mathbb{N}} = z^\gamma \end{aligned}$$