

$$\int_{dx}^{\mathbb{R}^d} \partial_i \gamma = 0$$

$$\begin{aligned} \overline{d \gamma \underline{dx^1} \underline{\otimes} \underline{dx^{i-1}} \underline{\otimes} \underline{dx^{i+1}} \underline{\otimes} \underline{dx^d}} &= \partial_j \gamma \underline{dx^j} \underline{\otimes} \underline{dx^1} \underline{\otimes} \underline{dx^{i-1}} \underline{\otimes} \underline{dx^{i+1}} \underline{\otimes} \underline{dx^d} \\ &= \partial_i \gamma \underline{dx^i} \underline{\otimes} \underline{dx^1} \underline{\otimes} \underline{dx^{i-1}} \underline{\otimes} \underline{dx^{i+1}} \underline{\otimes} \underline{dx^d} = -1^{i-i} \partial_i \gamma \underline{dx^1} \underline{\otimes} \underline{dx^{i-1}} \underline{\otimes} \underline{dx^i} \underline{\otimes} \underline{dx^{i+1}} \underline{\otimes} \underline{dx^d} \\ &= -1^{i-i} \partial_i \gamma \underline{dx^1} \underline{\otimes} \underline{dx^d} \\ \Rightarrow 0 &= \int_{dx}^{\mathbb{R}^d} \overline{d \gamma \underline{dx^1} \underline{\otimes} \underline{dx^{i-1}} \underline{\otimes} \underline{dx^{i+1}} \underline{\otimes} \underline{dx^d}} = -1^{i-i} \int_{dx}^{\mathbb{R}^d} \partial_i \gamma \underline{dx^1} \underline{\otimes} \underline{dx^d} = \int_{dx}^{\mathbb{R}^d} \partial_i \gamma \end{aligned}$$

$$\int_{dx}^{\mathbb{R}^d} \underline{P} \underline{\gamma} \underline{\dagger} = \int_{dx}^{\mathbb{R}^d} \overline{\underline{\gamma}} \underline{P} \underline{\dagger}$$

$$\begin{aligned} \int_{dx}^{\mathbb{R}^d} \underline{\partial_i \gamma} \underline{\dagger} &= - \int_{dx}^{\mathbb{R}^d} \underline{\gamma} \underline{\partial_i \dagger} = - \int_{dx}^{\mathbb{R}^d} \underline{x} \underline{\gamma} \underline{\partial_i \dagger} = - \int_{dx}^{\mathbb{R}^d} \underline{-x} \underline{\gamma} \underline{\partial_i \dagger} = \int_{dx}^{\mathbb{R}^d} \underline{-x} \underline{\gamma} \underline{\partial_i \dagger} = \int_{dx}^{\mathbb{R}^d} \underline{x} \overline{\underline{\gamma}} \underline{\partial_i \dagger} = \int_{dx}^{\mathbb{R}^d} \overline{\underline{\gamma}} \underline{\partial_i \dagger} = \int_{dx}^{\mathbb{R}^d} \overline{\underline{\gamma}} \underline{\partial_i \dagger} \\ \int_{dx}^{\mathbb{R}^d} \underline{P} \underline{Q} \underline{\gamma} \underline{\dagger} &= \int_{dx}^{\mathbb{R}^d} \overline{\underline{Q}} \overline{\underline{\gamma}} \underline{P} \underline{\dagger} = \int_{dx}^{\mathbb{R}^d} \overline{\underline{Q}} \underline{\gamma} \underline{P} \underline{\dagger} = \int_{dx}^{\mathbb{R}^d} \overline{\underline{\gamma}} \underline{Q} \underline{P} \underline{\dagger} = \int_{dx}^{\mathbb{R}^d} \overline{\underline{\gamma}} \underline{Q} \underline{P} \underline{\dagger} = \int_{dx}^{\mathbb{R}^d} \overline{\underline{\gamma}} \underline{P} \underline{Q} \underline{\dagger} \end{aligned}$$

$$\overline{P^z h_z^z F} = {}^0 h_0 \overline{P F}$$

$${}^z h_z = \sum_j {}^z h_j^j \overline{{}^z h}$$

$$\overline{P^z h_z^z F} = \sum_j \overline{P^z h_j^j \overline{{}^z h} F} = \sum_j \overline{{}^0 h_j} \overline{P^z h_j^z F} = \overline{{}^0 h} \overline{P^z h^z F} = \overline{{}^0 h} \overline{P^z F} = \overline{{}^0 h_0} \overline{P F}$$

$$\partial_p {}^z \mathbf{e}_w = {}^w \bar{p} {}^z \mathbf{e}_w$$

$$p \bowtie q = \overline{{}^0 \partial_p q}$$

$$\bigwedge_k^{K_{\mathbb{R}}} k \bowtie p = p$$

$$\overline{{}^z \partial_p^\nu F} =$$

$${}^z I^{-1} = \overline{{}^z \mathcal{K}_{\frac{1}{2}}^{-1/2}}$$

$${}^z g I^{-1} = \overline{{}^z g \mathcal{K}_{\frac{1}{2}}^{-1/2}} \stackrel{g \in G_{\mathbb{R}}}{=} \overline{{}^z g \mathcal{K}_{\frac{1}{2}}^{-1/2}} = \overline{{}^z g^{\nu/2p_c} \overline{{}^z \mathcal{K}_{\frac{1}{2}}^{-1/2}} \overline{{}^z g^{\nu/2p_c}}} = \overline{{}^z g^{\nu/p_c} \overline{{}^z \mathcal{K}_{\frac{1}{2}}^{-1/2}}} = \overline{{}^z g^{\nu/p_c} {}^z I^{-1}}$$

$$\Rightarrow {}^z I^{-1} = \overline{{}^z g^{-\nu/p_c} {}^z g I^{-1}} = \overline{{}^z g^{-1\nu/p_c} {}^z g I^{-1}} = \overline{{}^z g^{-1\nu/p_c} I^{-1}}$$

$$\tilde{L} F = \varrho I \overline{L I^{-1} F}$$

$$\tilde{L} (g^\nu F) = g^\nu \tilde{L} F$$

$$\overline{{}^z g^{\nu/p_c} {}^z g I} = {}^z I$$

$$\Rightarrow \overline{{}^x \tilde{L} g^\nu F} = \overline{{}^x \varrho I} \overline{{}^x L I^{-1} g^\nu F} = \overline{{}^x I} \overline{{}^x L ({}^z g^{-\nu/p_c} {}^z g I^{-1} {}^z g^{\nu/p_c} {}^z g F)}$$

$$= \overline{{}^x g^{\nu/p_c} {}^x g I} \overline{{}^x L ({}^z g I^{-1} {}^z g F)} = \overline{{}^x g^{\nu/p_c} {}^x g I} \overline{{}^x L I^{-1} F} = \overline{{}^x g^{\nu/p_c} {}^x \tilde{L} F} = \overline{{}^x g^\nu \tilde{L} F}$$

$$\tilde{L} F = \sum_{\alpha}^{d^{\mathbb{N}}} c_{\alpha} \partial^{\alpha} F$$

$$\overline{{}^x \tilde{L} F} = \sum_{\alpha}^{d^{\mathbb{N}}} \overline{{}^x c_{\alpha}} \overline{{}^x \partial^{\alpha} F}$$

$$\overline{{}^0 \tilde{L} F} = \sum_{\alpha}^{d^{\mathbb{N}}} \overline{{}^0 c_{\alpha}} \overline{{}^0 \partial^{\alpha} F} = \overline{{}^0 \partial_p F} = p \bowtie F$$

$$\tilde{L}_0 = \partial_p$$

$$K_{\mathbb{R}} \bowtie p = p$$

$$\overline{k^{-1} \bowtie p \bowtie F} = p \bowtie \overline{k \bowtie F} = \overline{\partial_p k \bowtie F} = \overline{\tilde{L} k \bowtie F} = \overline{\tilde{L} k^\nu \bowtie F} = \overline{k^\nu \tilde{L} F} = \overline{\tilde{L} F} = \overline{\partial_p F} = p \bowtie F$$

$$\overline{\partial_p^0 F} = \overline{\partial_p^0 F} = \overline{\partial_p^0 \gamma_x \bowtie F} = \overline{\partial_p \gamma_x \bowtie F} = p \bowtie \overline{\gamma_x \bowtie F}$$

$$\overline{\gamma_x^{\nu/p_c} \partial_p^\nu F} = \overline{\gamma_x^\nu \partial_p^\nu F} = \overline{\partial_p^\nu \gamma_x^\nu F} = \overline{\partial_p \gamma_x^\nu F} = p \bowtie \overline{\gamma_x^\nu F}$$

$$p = \sum_{\mu}^{K_{\mathbb{C}} \# K_{\mathbb{R}}} p_{\mu}$$

$$\tilde{L} = \sum_{\mu}^{K_{\mathbb{C}} \# K_{\mathbb{R}}} \partial_{p_{\mu}}^{\nu}$$

$$LF = \varrho I \sum_{\mu}^{K_{\mathbb{C}} \# K_{\mathbb{R}}} \hat{\partial}_{p_{\mu}} I^{-1} F$$

$$D_{\infty}^{\mathbb{R}} \mathbb{C} \xleftarrow[G_{\mathbb{R}}\text{-inv}]{\mathfrak{A}} D_{\infty}^{\mathbb{C}} \mathbb{C} \left\{ \begin{array}{l} \mathfrak{A} = \sum_{\alpha:\beta} \mathfrak{A}^{\alpha:\beta} \partial_{\alpha} \bar{\partial}_{\beta} \\ \mathfrak{A} \mathbb{1} = \sum_{\alpha:\beta} \mathfrak{A}^{\alpha:\beta} \partial_{\alpha} \bar{\partial}_{\beta} \mathbb{1} \\ \overline{\mathfrak{A} \mathbb{1}}^{z:\bar{z}} = \sum_{\alpha:\beta} \overline{\mathfrak{A}^{\alpha:\beta} \partial_{\alpha} \bar{\partial}_{\beta} \mathbb{1}}^{z:\bar{z}} \end{array} \right.$$

$$Z_{\infty}^{\mathbb{R}} \mathbb{C} \xleftarrow[K_{\mathbb{R}}\text{-inv}]{\mathfrak{A}_0} Z_{\infty}^{\mathbb{C}} \mathbb{C} \left\{ \begin{array}{l} \mathfrak{A}_0 = \sum_{\alpha:\beta}^0 \mathfrak{A}^{\alpha:\beta} \partial_{\alpha} \bar{\partial}_{\beta} \\ \mathfrak{A}_0 \mathbb{1} = \sum_{\alpha:\beta}^0 \mathfrak{A}^{\alpha:\beta} \partial_{\alpha} \bar{\partial}_{\beta} \mathbb{1} \\ \overline{\mathfrak{A}_0 \mathbb{1}}^{z:\bar{z}} = \sum_{\alpha:\beta}^0 \overline{\mathfrak{A}^{\alpha:\beta} \partial_{\alpha} \bar{\partial}_{\beta} \mathbb{1}}^{z:\bar{z}} \end{array} \right.$$

$$\overline{\mathfrak{A}_0 \mathbb{1}}^z = \sum_{\alpha:\beta}^0 \mathfrak{A}^{\alpha:\beta} z^{\alpha} \bar{z}^{\beta}$$

$$\mathfrak{a}_0 = \hat{\mathfrak{a}}_0 (\partial: \bar{\partial})$$

$${}^z p = \widehat{\mathfrak{a}}_0 = \sum_{\alpha} {}^0 \mathfrak{a}^{\alpha} z^{\alpha} \in \mathbb{Z}^{\mathbb{C}} \triangleleft_{\mathbb{C}} K^{\mathbb{R}} \text{ inv}$$

$${}^z p = \sum_{\mu} {}^{K_{\mathbb{C}/\mathbb{R}}^{\sharp}} p_{\mu} {}^z K_{\mathbb{C}/\mathbb{R}}^{\mu}$$

$$K_{\mathbb{C}/\mathbb{R}}^{\mu} = \int_{\lambda}^{\lambda} K_{\mathbb{C}/\mathbb{R}}^{\mu} (G_{\mathbb{R}}/K_{\mathbb{R}})_{\lambda}$$