

$$\mathbb{K}^n \times_n \mathbb{J} \ni \cdot \mathfrak{h} = \begin{bmatrix} 1 \mathfrak{h} \\ \vdots \\ n \mathfrak{h} \end{bmatrix}$$

$$\begin{array}{ccc} & n \mathbb{J} & \\ \uparrow & & \downarrow \\ {}^h \mathfrak{h}_i = \mathfrak{h} & & {}^h \mathfrak{h}_i = \mathfrak{h} \\ \downarrow & & \uparrow \\ & n \mathbb{J} & \end{array}$$

$$\mathbb{K}^n \xrightarrow[\mathfrak{h}]{\mathfrak{h}_i} \mathbb{C}_n \mathbb{J}^n$$

$$\mathbb{K}^n \xrightarrow[\mathfrak{h}]{\mathfrak{h}_i} \mathbb{C}_{p,q} \mathbb{K}^{p,q}$$

$${}^h \mathfrak{h}_i = {}^h \mathfrak{h}_i^* \mathfrak{h}_i$$

$${}^h \mathfrak{h}^{\mu\nu} = {}^h \mathfrak{h}_i^{\mu} \eta^{ij} {}^h \mathfrak{h}_j^{\nu}$$

$$\mathfrak{h}_h = \mathfrak{h}_i^* \eta^{ij} \mathfrak{h}_j$$

$$\cdot \mathfrak{h} = \begin{bmatrix} {}^h \mathfrak{h}_i^* \mathfrak{h}_i \cdot \mathfrak{h} \\ \mathfrak{h}_i \mathfrak{h}_i \cdot \mathfrak{h} \end{bmatrix}$$

$${}_i \delta^j = \begin{bmatrix} \mathfrak{h}_i^k \mathfrak{h}_k^j \\ \mathfrak{h}_i^k \mathfrak{h}_k^j \end{bmatrix}$$

$$\cdot \mathfrak{h} = \begin{bmatrix} {}^h \mathfrak{h}_i^* \mathfrak{h}_i \cdot \mathfrak{h} \\ \mathfrak{h}_i \mathfrak{h}_i \cdot \mathfrak{h} \end{bmatrix}$$

$${}_i \delta^j = \begin{bmatrix} \mathfrak{h}_i^k \mathfrak{h}_k^j \\ \mathfrak{h}_i^k \mathfrak{h}_k^j \end{bmatrix}$$

$$\cdot \mathfrak{h} \times \mathfrak{h} = \mathfrak{h}_i^* \eta^{ij} \mathfrak{h}_j = {}_i \mathfrak{h}^* \eta^{ij} {}_j \mathfrak{h}$$

$$\cdot \text{th} \underset{h}{\times} \cdot \text{th} = \begin{cases} \underbrace{h \overset{\circ}{\text{th}} \times h \overset{\circ}{\text{th}}} & = \overbrace{h \overset{\circ}{\text{th}} \overset{\circ}{\eta} h \overset{\circ}{\text{th}}}^* = \underbrace{\overset{*}{\text{th}} \overset{h}{\text{th}} \overset{\circ}{\eta} h \overset{\circ}{\text{th}}} = \overset{*}{\text{th}} \underbrace{\overset{h}{\text{th}} \overset{\circ}{\eta} h \overset{\circ}{\text{th}}} = \overset{*}{\text{th}} \overset{h}{\text{th}} \cdot \text{th} = \mu \overset{*}{\text{th}} \overset{h}{\text{th}} \overset{\mu\nu}{\text{th}} \\ \underbrace{\overset{\circ}{\text{th}} \times \overset{\circ}{\text{th}}} & = \overbrace{\overset{\circ}{\text{th}} \overset{\circ}{\eta} \overset{\circ}{\text{th}}}^* = \underbrace{\overset{*}{\text{th}} \overset{\circ}{\text{th}} \overset{\circ}{\eta} \overset{\circ}{\text{th}}} = \overset{*}{\text{th}} \underbrace{\overset{\circ}{\text{th}} \overset{\circ}{\eta} \overset{\circ}{\text{th}}} = \overset{*}{\text{th}} \overset{\circ}{\text{th}} \cdot \text{th} = \mu \overset{*}{\text{th}} \overset{\circ}{\text{th}} \overset{\nu}{\text{th}} \end{cases}$$