4)
$$\lim_{x \to 0} \frac{1}{2} x^{7} \partial x + c^{7} x \leq d$$
. $\int_{\mathbb{R}^{2}} Ax - \alpha \leq 0$
 $\int_{\mathbb{R}^{2}} (x, \lambda, \mu) = \frac{1}{2} x^{7} \partial x + c^{7} x + \lambda^{7} (Ax - \alpha) + \mu^{7} (Bx - \delta)$
 $\int_{\mathbb{R}^{2}} (\lambda, \mu) = \inf_{x \in \mathbb{R}^{n}} G(x, \lambda, \mu) \xrightarrow{\text{s.d.}} \chi^{2} (\lambda, \mu)$

 $\nabla_{X} \mathcal{L}(X^*, \lambda_{1} \mu) = 0 \implies x^* = -Q^* (c + A^{7} + B^{7})$

 $\beta(\lambda_{|\mu}) = \frac{1}{2} \left(\frac{\lambda}{\mu} \right)' P(\frac{\lambda}{\mu}) + d^{T}(\frac{\lambda}{\mu}) - \frac{1}{2} c^{T}Q^{-1}C^{-1}C^{-1}Q^{-1}C^{-1}Q^{-1}C^{-1}Q^{-1}C^{-1}Q^{-1}C^{-1}Q^{-1}C^{-1}Q^{-1}C^{-1}Q^{$

2)
$$A = (\chi(x_{i}, x_{j}))_{1 \leq i, j \leq m} \in \mathbb{R}^{m \times m}$$

$$G = ((Y_{i}, Y_{j})_{H})_{1 \leq i, j \leq m}$$

$$(Y_{i}, Y_{j})_{H} = (\Psi(x_{i})_{H} - \Psi(x_{j})_{H})_{H}$$

$$= (\Psi(x_{i})_{H}, \Psi(x_{j})_{H} - \frac{1}{m} \sum_{i \leq m} (\Psi(x_{i})_{H}, \Psi(x_{j})_{H})_{H}$$

$$= (\Psi(x_{i})_{H}, \Psi(x_{j})_{H} - \frac{1}{m} \sum_{i \leq m} (\Psi(x_{i})_{H}, \Psi(x_{j})_{H})_{H}$$

 $-\frac{2}{m}\sum_{i=1}^{m} (\Psi(k)) \Psi(k_i) H + \sum_{i=1}^{m} (\Psi(k)) \Psi(k_i) H$

6 = A - 1 m A - A 1 m + 1 m A 1 m

$$V_{i} = \frac{1}{K} (\Psi_{i})_{\mathcal{H}} \qquad i = n_{-, m}$$

$$V_{i} = \frac{1}{K} (\Psi_{i})_{\mathcal{H}} \qquad i = n_{-, m}$$

$$G_{V} = \frac{1}{K} V_{i} \qquad \int_{V_{i}} \frac{1}{K} (\Psi_{i} \psi_{i})_{\mathcal{H}} dV_{i}$$

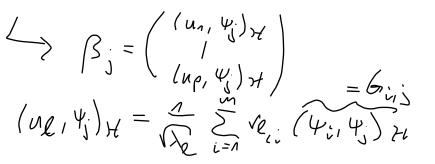
$$\|V\|_{2} = \sqrt{V_{i}^{2}} = \sqrt{\frac{2}{K}} (\frac{1}{K} (\Psi_{i} \psi_{i})_{\mathcal{H}})^{2}$$

$$\|V\|_{2} = \sqrt{2} \left(\sum_{i=1}^{\infty} (\Psi_{i}, \Psi_{i})_{\mathcal{H}} \right)^{2}$$

$$= \sqrt{2} \left(\sum_{j=1}^{\infty} (\Psi_{i}, \Psi_{j})_{\mathcal{H}} \Psi_{i,j} \Psi_{j,j} \Psi_{$$

$$\frac{1}{3}$$

 $C\theta$: $\lambda \Psi$



3)
$$\rho(z) = \| \mathcal{P}(z) - \mathcal{P}_{\mathcal{A}}(x) \|_{\mathcal{H}}^{2}$$

$$= (\mathcal{P}(z), \mathcal{P}(z))_{\mathcal{H}}^{2} - 2(\mathcal{P}(z), \mathcal{P}_{\mathcal{Q}}(x))_{\mathcal{H}}^{2}$$

$$= \mathcal{L}(z, z) = \Lambda + C$$

$$\Rightarrow \max_{z} (\mathcal{P}(z), \mathcal{P}_{\mathcal{Q}}(x))_{\mathcal{H}}^{2}$$

$$= \sum_{j=1}^{m} \gamma_{j} \underbrace{\mathcal{K}(z, x_{j})}_{=exp(-c||z-x_{j}||^{2})}^{2}$$

$$= -2 = \sum_{j=1}^{\infty} x_j \exp(-d(z-x_j/l^2))$$

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$$\int \Psi(x) = K(\cdot, x) \in \mathbb{R}^{k}$$

$$S = \begin{cases} \sum_{i=n}^{\infty} c_{i}K(\cdot, x_{i}) \mid n \in \mathbb{N}, c_{i} \in \mathbb{R}, x_{i} \in \mathbb{X} \end{cases}$$

$$(f, \gamma)_{S} = \sum_{i=n}^{\infty} \sum_{j=n}^{\infty} \alpha_{i} \beta_{j} k(x_{i}, y_{j})$$

$$J = \sum_{i=n}^{\infty} \alpha_{i} k(\cdot, x_{i})$$

J = 5 B. Kr. H.)