

$$(1) \quad \inf_{v \in K} \sup_{q \in M} L(v, q)$$

$$(2) \quad L(u, q) \leq L(u, p) \leq L(v, p) \forall q \in M, \forall v \in K,$$

$$\begin{matrix} K \\ V, M \\ Q \\ V, Q \\ (\cdot, \cdot)_V \\ (\cdot, \cdot)_Q \\ \| \cdot \|_V \\ \| \cdot \|_Q \end{matrix}$$

$$L(v, q) = \frac{1}{2}a(v, v) - (f, v) + (q, \Phi(v))_Q,$$

$$(3) \quad \begin{matrix} a(v, v) \\ V \\ \exists c_1 > 0 : \forall v \in V a(v, v) c_1 \|v\|_V^2. \end{matrix}$$

$$(4) \quad \begin{matrix} (f, v) \\ \Phi(v) : \\ V \rightarrow Q \\ \Phi \\ \forall v_1, v_2 \in K | \Phi(v_1) - \Phi(v_2) |_Q \leq C_\Phi \|v_1 - v_2\|_V. \end{matrix}$$

$$(5) \quad \begin{matrix} (u_n, p_n) \\ u_n \in V \\ \min_{v \in K} (J_a(v) + (p_n, \Phi(v))_Q) \end{matrix}$$

$$(6) \quad \begin{matrix} p_{n+1} \\ M \end{matrix}$$

$$(7) \quad p_{n+1} = \Pi_M(p_n + \rho_n \Phi(u_n)),$$

$$\begin{matrix} \rho_n \\ \prod_{i=1}^M \\ M \\ \text{ell Lipschitz} \\ \frac{\rho_n}{2d_1\rho_n - C_\Phi^2\rho_n^2} \geq \theta > 0, \end{matrix}$$

$$(8) \quad \begin{matrix} \|u_n - \\ u\| [n \rightarrow \\ +\infty] 0 \\ \rho_n \\ 0 < \rho_n < \frac{2c_1}{C_\Phi^2}, \end{matrix}$$

$$(9) \quad \begin{matrix} d \\ \min_{x \in K} \left\{ \frac{1}{2} Ax \cdot x - l \cdot x \right\}, A \in M^{d \times d}, l \in R \end{matrix}$$

$$K := \{x \in R^d \mid g^i \cdot x = 0, i = 1, \dots, n, g^i \cdot x \leq 0, i = n+1, \dots, n+m\}, n+m < d,$$

$$\begin{matrix} g^i \in \\ R^d \\ \lambda \in \\ R^{n+m} \\ L(x, \lambda) = \frac{1}{2} Ax \cdot x - l \cdot x + \sum_{i=1}^{n+m} \lambda_i (g^i \cdot x), \lambda_i \geq 0, i > n. \end{matrix}$$

$$\sum_{i=1}^{n+m} \lambda_i (g^i \cdot x) = \sum_{i=1}^{n+m} \lambda_i \sum_{j=1}^d g_j^i x_j = \sum_{j=1}^d x_j \sum_{i=1}^{n+m} g_j^i \lambda_i = x \cdot G^t \lambda.$$

$$\begin{matrix} x \\ L(x, \lambda) \\ A \end{matrix}$$

$$Ax = l - G^t \lambda.$$

$$\begin{matrix} \lambda_0 \\ (x^k, \lambda^k) \\ \rho_n \\ \rho \\ x^{k+1} \end{matrix}$$