Algorithm 1: PDD-based Algorithm for Solving ($\mathcal{P}_5$)

1   Initialize $\boldsymbol{\vartheta}^0$, $\boldsymbol{\theta}^0$, $\boldsymbol{\lambda}^0$, $\tilde{\boldsymbol{\theta}}$, $k = 1$, $c < 1$, and $\epsilon_{\text{out}} > 0$;

2   **repeat**

3     $t = 0$;

4   Set $\boldsymbol{\vartheta}^{k-1,0} = \boldsymbol{\vartheta}^{k-1}$, $\boldsymbol{\theta}^{k-1,0} = \boldsymbol{\theta}^{k-1}$, $\boldsymbol{\lambda}^{k-1,0} = \boldsymbol{\lambda}^{k-1}$;

5   **repeat**

6       $l = 0$;

7   **repeat**

8   Update $\boldsymbol{\theta}^{k-1,t+1}$ by solving problem ($\mathcal{P}_9$);

9         $l \leftarrow l + 1$;

10        $\tilde{\boldsymbol{\theta}} = \boldsymbol{\theta}^{k-1,t+1}$;

11   **until** *convergence*;

12   Update $\boldsymbol{\vartheta}^{k-1,t+1}$ according to (50);

13       $t \leftarrow t + 1$;

14   **until** *convergence*;

15   Set $\boldsymbol{\vartheta}^k = \boldsymbol{\vartheta}^{k-1,t}$, $\boldsymbol{\theta}^k = \boldsymbol{\theta}^{k-1,t}$;

16     $\boldsymbol{\lambda}^{k+1} = \boldsymbol{\lambda}^k + \frac{1}{\rho^k}(\boldsymbol{\theta}^k - \boldsymbol{\vartheta}^k)$;

17     $\rho^{k+1} = c\rho^k$;

18     $k \leftarrow k + 1$;

19   **until** $\|\boldsymbol{\vartheta}^k - \boldsymbol{\theta}^k\|_2$ *is below a certain threshold* ϵ_{out};