$\mathbf{x}_0 = \Pi \mathbf{x}_{00} + \mathbf{U}(\mathbf{U}^T \mathbf{A} \mathbf{U})^+ \mathbf{U}^T \mathbf{b}$

$\mathbf{r}_0 = \mathbf{b} - \mathbf{A}\mathbf{x}_0$

$\mathbf{Z}_0 = (\sum_{s=1}^{N} \mathbf{H}^{(s)})\mathbf{r}_0$

$\mathbf{P}_0 = \mathbf{\Pi}\mathbf{Z}_0$

While not converged

$\mathbf{Q}_i = \mathbf{A}\mathbf{P}_i$

$\mathbf{\Delta}_i = \mathbf{Q}_i{}^T \mathbf{P}_i,\ \gamma_i = \mathbf{P}_i{}^T \mathbf{r}_i,\ \boldsymbol{\alpha}_i = \mathbf{\Delta}_i{}^+ \gamma_i$

$\mathbf{x}_{i+1} = \mathbf{x}_i + \mathbf{P}_i \boldsymbol{\alpha}_i$

$\mathbf{r}_{i+1} = \mathbf{r}_i - \mathbf{Q}_i \boldsymbol{\alpha}_i$

$\mathbf{Z}_{i+1} = [\mathbf{H}^1 \mathbf{r}_{i+1} | ... | \mathbf{H}^N \mathbf{r}_{i+1}]$

For $j = 1, ..., i$

$\boldsymbol{\beta}_{i,j} = \frac{\langle \mathbf{z}_{i+1}, \mathbf{A}\mathbf{p}_j \rangle}{\langle \mathbf{p}_j, \mathbf{A}\mathbf{p}_j \rangle}$

$\mathbf{P}_{i+1} = \mathbf{\Pi}\mathbf{Z}_{i+1} - \mathbf{P}_i \boldsymbol{\beta}_{i,j}$