

$$\psi \leftarrow \psi_0$$

$$r \leftarrow \eta - \textcolor{red}{DD}^\dagger \psi$$

$$p \leftarrow r$$

while $|r| \geq r_{min}$ **do**

$$r_{old} \leftarrow |r|$$

$$\alpha \leftarrow \frac{r_{old}}{\langle p | \textcolor{red}{DD}^\dagger | p \rangle}$$

$$\psi \leftarrow \psi + \alpha p$$

$$r \leftarrow r - \alpha \textcolor{red}{DD}^\dagger p$$

$$\beta \leftarrow \frac{|r|}{r_{old}}$$

$$p \leftarrow r + \beta p$$

end while