Server

$$\mathbf{r} \leftarrow \text{TRNG}()$$
 $\text{seed}_{\mathbf{a}'} \leftarrow \text{TRNG}()$
 $\mathbf{X} \leftarrow \text{TRNG}()$
 $\mathbf{b}' \leftarrow \text{LFSR}(\text{seed}_{\mathbf{a}'})^T \mathbf{s} + \mathbf{X}^T \mathbf{e} + \mathbf{r} \lfloor q/2 \rfloor$
 $ch \leftarrow (\text{seed}_{\mathbf{a}'}, \mathbf{b}')$
 $\text{DB} \leftarrow (ch, \mathbf{r})$

$$\mathbf{s}_R \leftarrow \mathrm{POK}$$

$$\mathbf{h}, ch$$
 \mathbf{h}, ch

 \mathbf{r}_R

 $\mathbf{h}, ch, \mathbf{r} \leftarrow \mathrm{DB}$

$$\mathbf{s} \leftarrow \mathrm{FE.Rec}(\mathbf{s_R}, \mathbf{h})$$

$$\mathbf{r}_R \leftarrow \mathrm{PUF}(ch, \mathbf{s})$$

• accept if
$$HD(\mathbf{r}_R, \mathbf{r}) < th$$