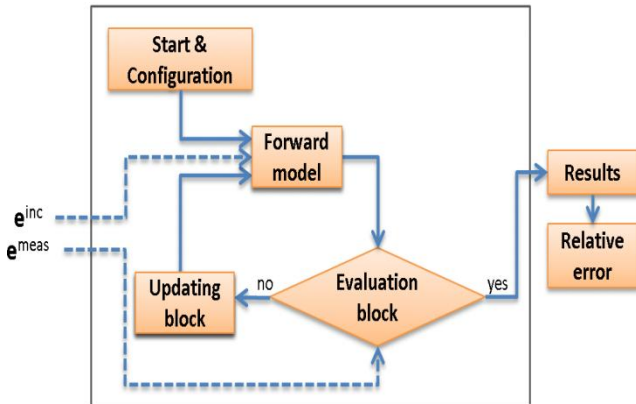


What's in the box?

Let's find the answer
by microwave!



Whole flow



Evaluation block

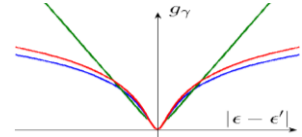
$$F^{DA}(\epsilon) = F^{LS}(\epsilon) + \mu F^D(\epsilon)$$

$$F^{LS}(\epsilon) = \frac{1}{N_{LS}} \|e^{meas} - e^{scat}(\epsilon)\|^2$$

$$F^D(\epsilon) = \sum_{j,k,l} \sum_{(j',k',l') \in N_{j,k,l}} g_\gamma(|\epsilon_{j,k,l} - \epsilon_{j',k',l'}|)$$

Proposed
regularization

- strict convex
- discontinuity adaptive
- sensitive to tiny differences

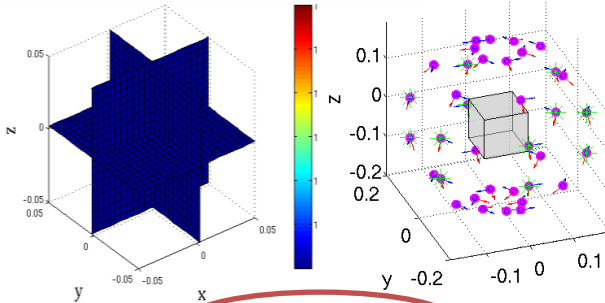


Updating block

Gauss-Newton:

$$\begin{bmatrix} \Delta \epsilon_k \\ \Delta \epsilon_k^* \end{bmatrix} = -\mathbf{H}_k^{-1} \mathbf{g}_k$$

Start & Configuration

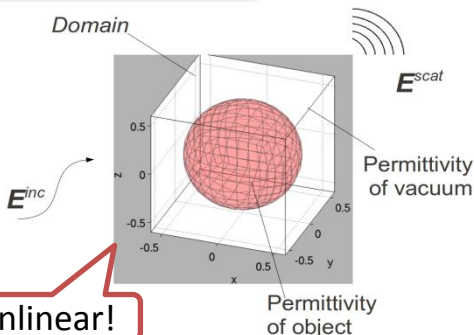


ill-posed!

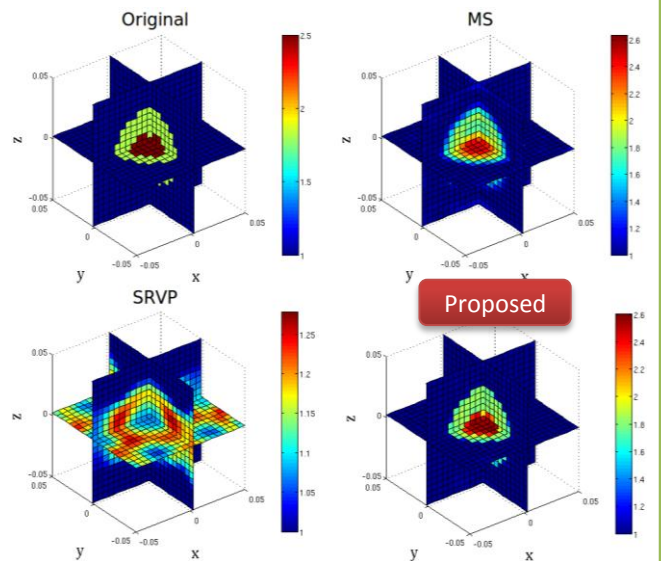
20x20x20x2=16000
data points

VS 72x24=1728
data points

Forward model



Results



Relative error

MS	SRVP	Proposed
0.911	0.2682	0.0401