A

out-of-plane

in-plane signal

average (lateral)

- parasitic scattering

lateral

B

low SNR? ✗

Encoder $q_\theta(\mathbf{z}|X,\zeta)$

latent $\mathbf{z}$

Decoder $p_\theta(X|\mathbf{z},\zeta)$

sample

GISAXS image X

in-plane signal ζ

context $\mathbf{c} = (\mathbf{z},\zeta)$

fast feedback

C

ABC + KDE

NFs+CVAEs (Ours)

Expert fit

material parameters y

D

$f_8(u_7,\mathbf{c}) \circ ... \circ f_1(u,\mathbf{c})$

Inference time: **ms**

Amortized: **yes**

$p(u|\mathbf{c})$

$p(y|\mathbf{c})$

Base distribution $\rightarrow$ Posterior distribution