

A APPENDIX

A.1 ILLUSTRATION OF S-HCT GEOMETRY

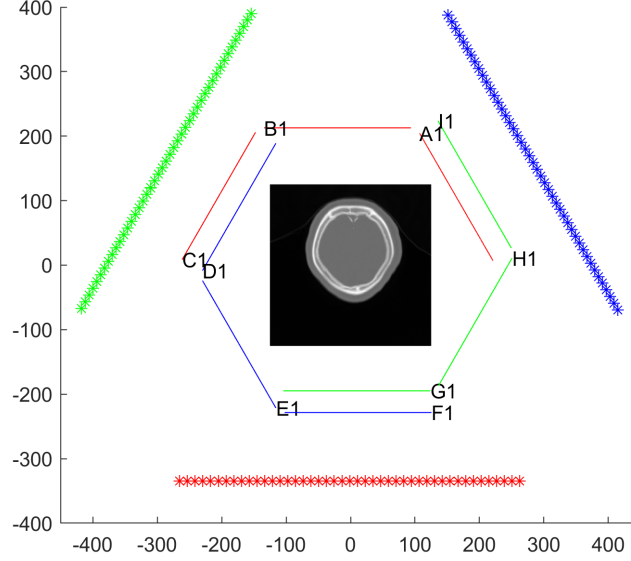


Figure 9: The illustration of s-HCT (Luo et al., 2021) geometry with three linear CNT x-ray source arrays in a triangular shape. The star marks indicate the source. The lines indicate the detectors in three planes that receive the signal from the corresponding source in the same color.

A.2 QUANTITATIVE RESULTS FOR FWI

Table 4: **Quantitative results for FWI**, compared with InversionNet and Auto-Linear, in terms of MAE, MSE, and SSIM. For each dataset, we use bold to highlight the best results.

Metrics	Model	FVA	FVB	CVA	CVB	FFA
MAE↓	HINT (ours)	0.0037	0.0206	0.0296	0.0894	0.0075
	Auto-Linear	0.0081	0.0467	0.0738	0.1820	0.0164
	BigFWI	0.0055	0.0233	0.0343	0.0933	0.0106
MSE↓	HINT (ours)	0.0001	0.0054	0.0059	0.0459	0.0005
	Auto-Linear	0.0005	0.0151	0.0188	0.1051	0.0026
	BigFWI	0.0001	0.0048	0.0064	0.0464	0.0008
SSIM↑	HINT (ours)	0.9965	0.9669	0.9178	0.7963	0.9917
	Auto-Linear	0.9888	0.9044	0.8057	0.6169	0.9701
	BigFWI	0.9943	0.9658	0.9027	0.7808	0.9871
Metrics	Model	FFB	CFA	CFB	SA	SB
MAE↓	HINT (ours)	0.0728	0.0143	0.1289	0.0514	0.0558
	Auto-Linear	0.1208	0.0277	0.1791	0.0719	0.0638
	BigFWI	0.0710	0.0167	0.1245	0.0514	0.0553
MSE↓	HINT (ours)	0.0186	0.0018	0.0442	0.0081	0.0079
	Auto-Linear	0.0362	0.0061	0.0697	0.0139	0.0097
	BigFWI	0.0175	0.0022	0.0411	0.0075	0.0077
SSIM↑	HINT (ours)	0.8076	0.9784	0.6816	0.9136	0.7532
	Auto-Linear	0.6868	0.9426	0.5672	0.8423	0.7275
	BigFWI	0.8027	0.9712	0.6781	0.9125	0.7567

A.3 VALIDATION ACROSS DIFFERENT RESOLUTIONS

Table 5: Quantitative results with different feature map z_ψ resolutions, in terms of SSIM, evaluated on OpenFWI.

Metrics	Resolution	FVA	FVB	CVA	CVB	FFA
SSIM $\uparrow$	5×5	0.9957	0.9669	0.9109	0.7925	0.9906
	7×7	0.9958	0.9655	0.9091	0.7882	0.9906
	14×14	0.9965	0.9669	0.9178	0.7963	0.9917
	35×35	0.9948	0.9634	0.8997	0.7733	0.9891
Metrics	Resolution	FFB	CFA	CFB	SA	SB
SSIM $\uparrow$	5×5	0.7981	0.9767	0.6727	0.9088	0.7512
	7×7	0.7943	0.9764	0.6702	0.9064	0.7456
	14×14	0.8076	0.9784	0.6816	0.9136	0.7532
	35×35	0.7939	0.9725	0.6777	0.9079	0.7384