

図1

# 線形連立方程式

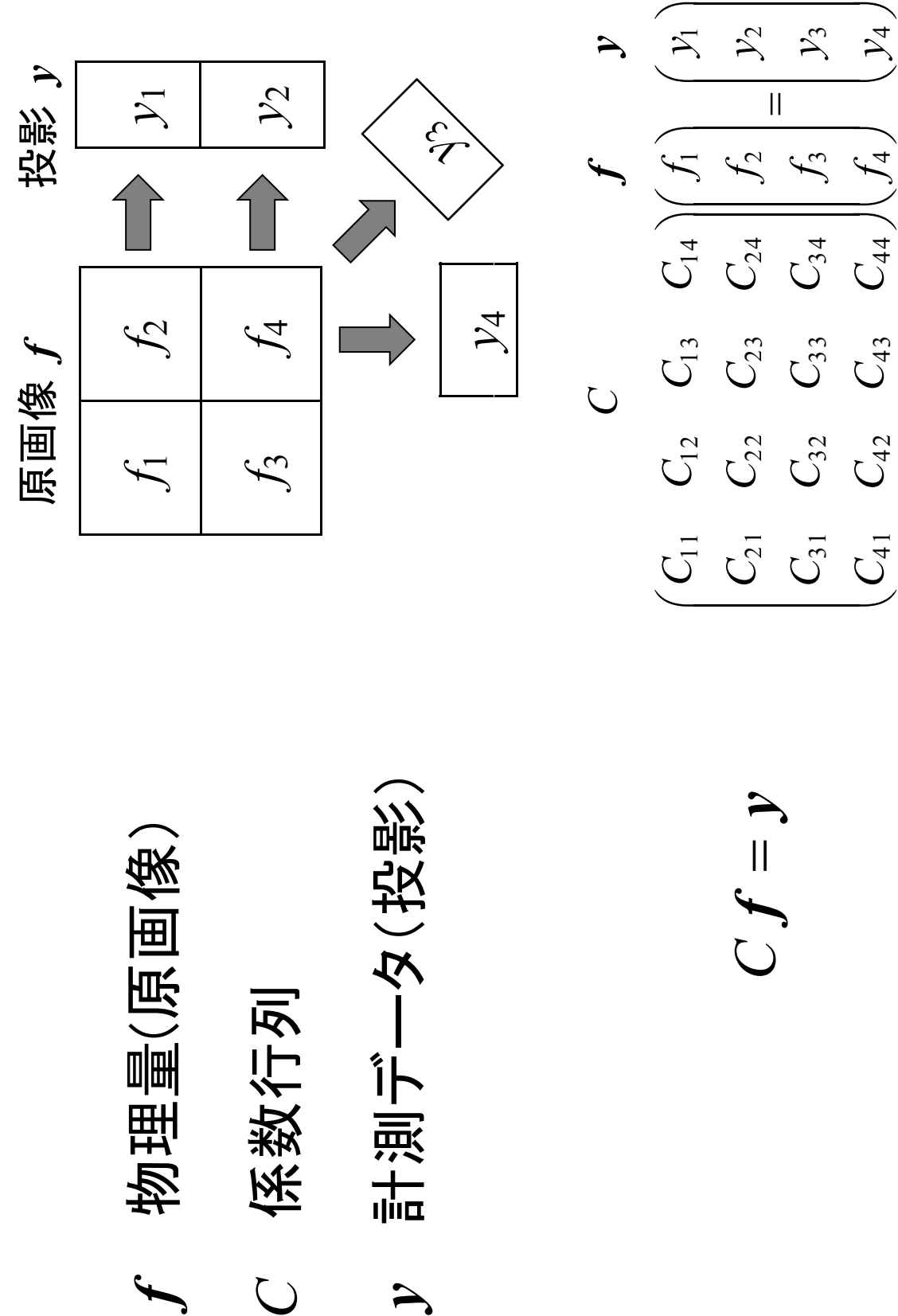
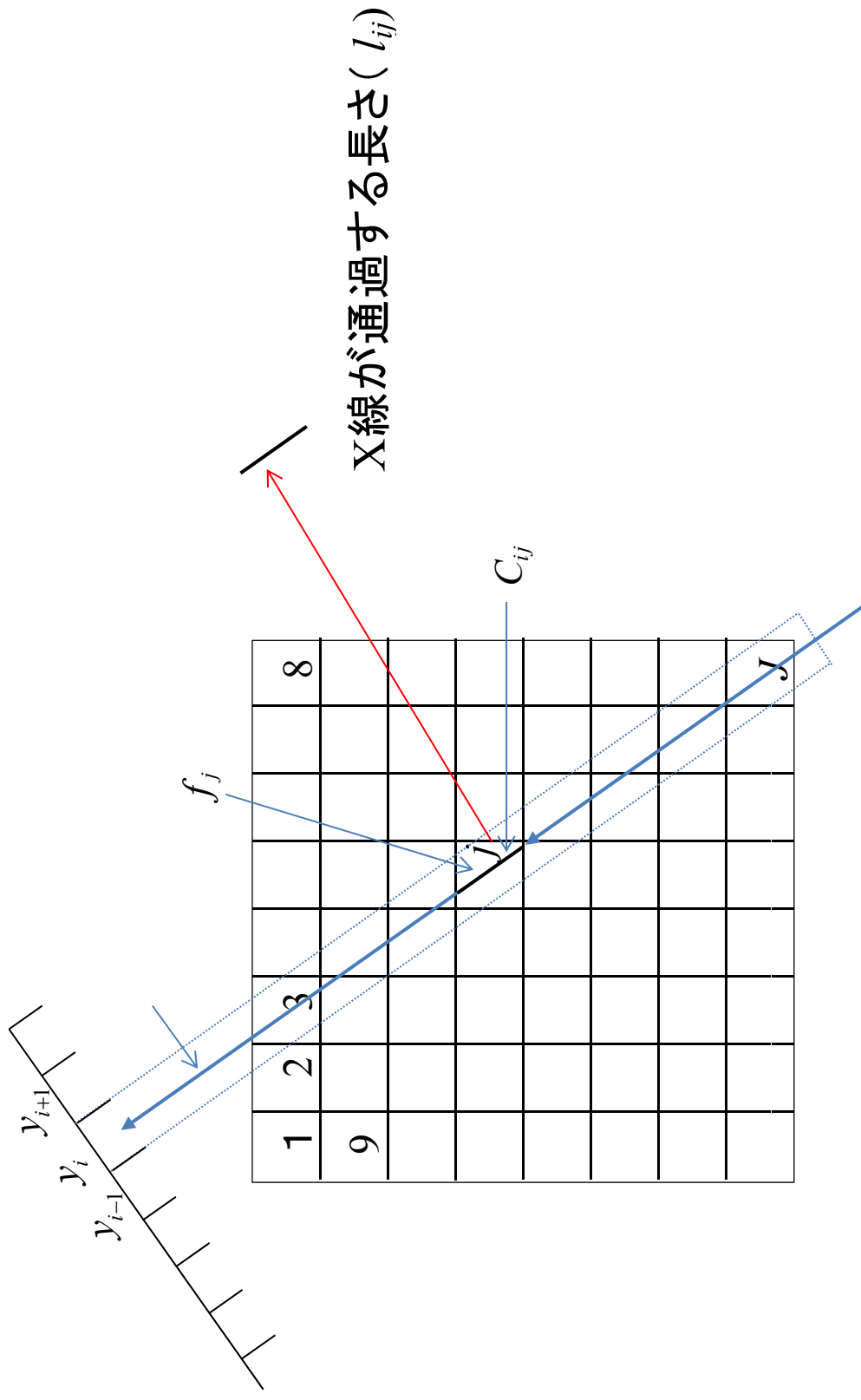


図2

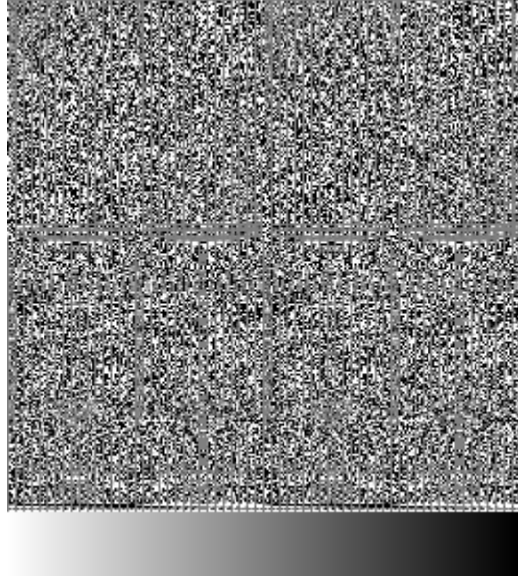
# 係数行列 $C$



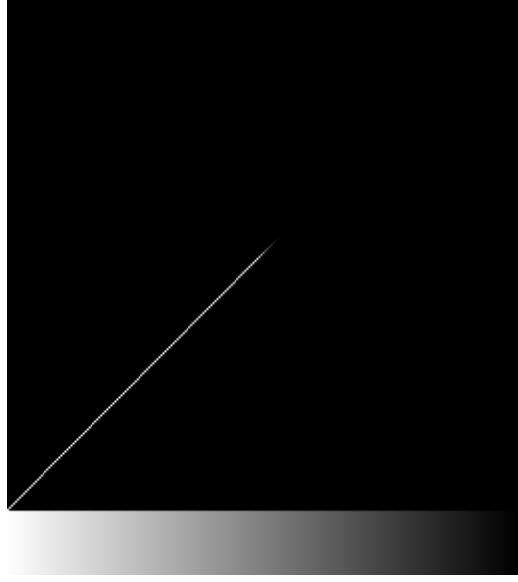
検出確率  $C_{ij}$ :  $i$  番目の  $X$ 線が画素  $j$  を通過する長さ ( $l_{ij}$ )

图3

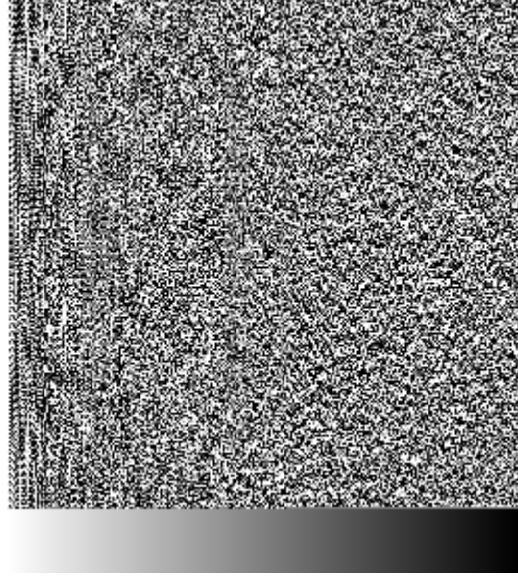
(a) 行列  $U$



(b) 行列  $W$



(c) 行列  $V^T$



(d) 疑似逆行列  $C^+$

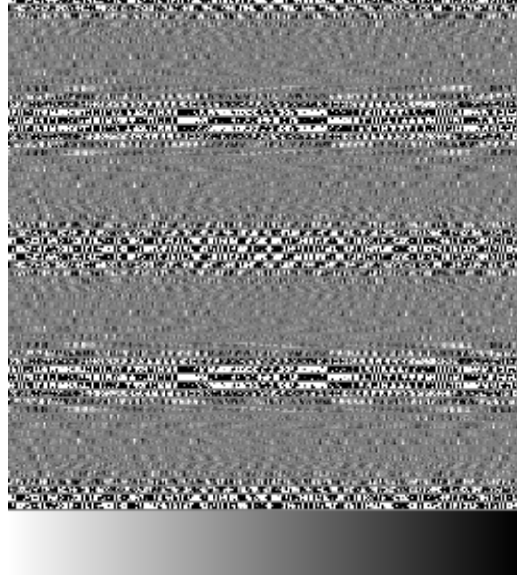
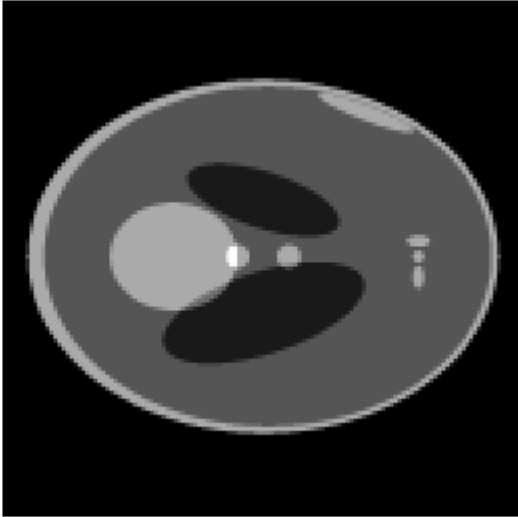
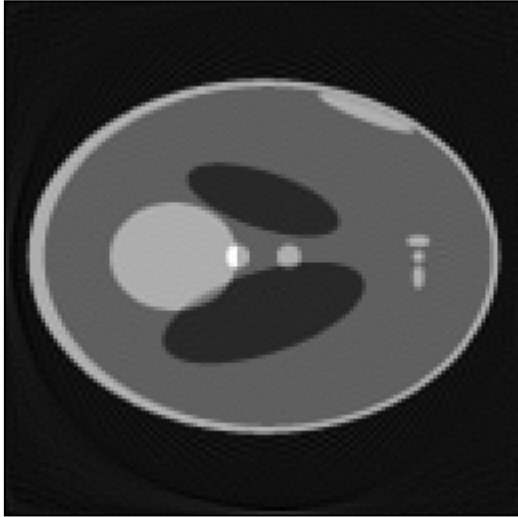


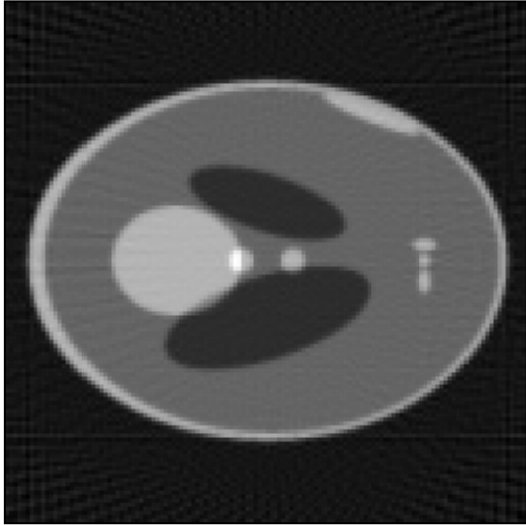
図4



原画像

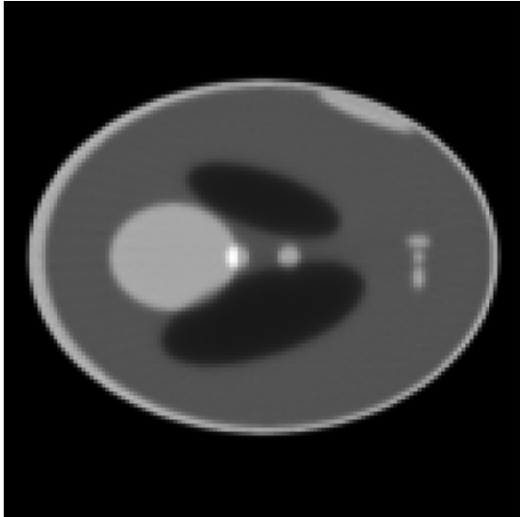


SVD

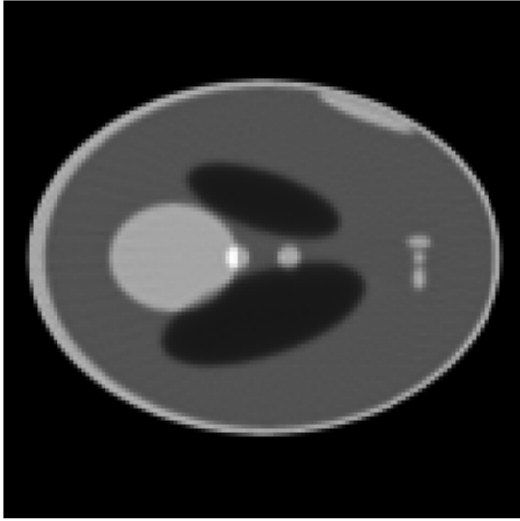


FBP

画像再構成法	平均絶対誤差
SVD	0.00195
FBP	0.00798
ML-EM	0.00371
OS-EM	0.00270



ML-EM



OS-EM

図5

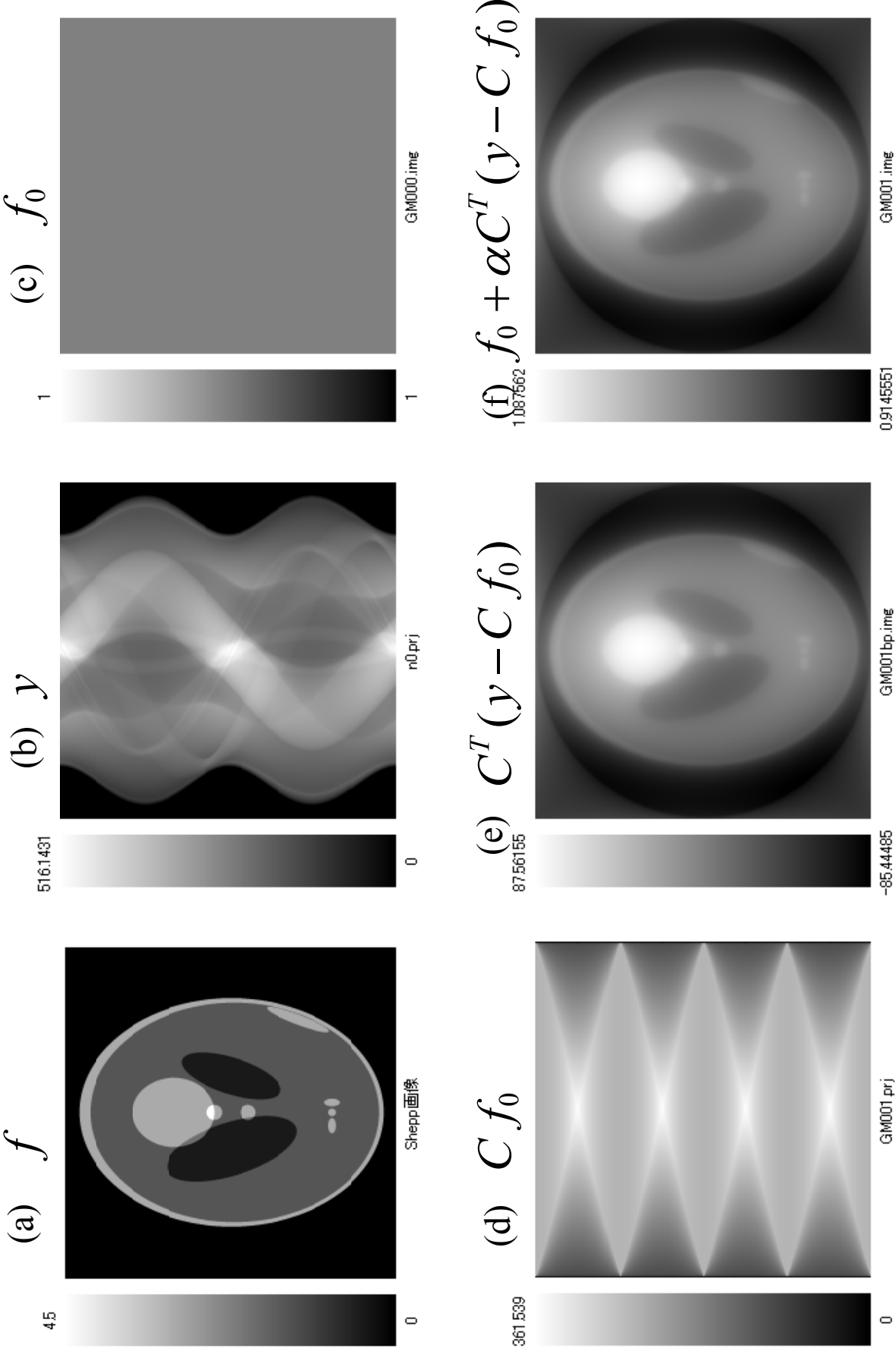
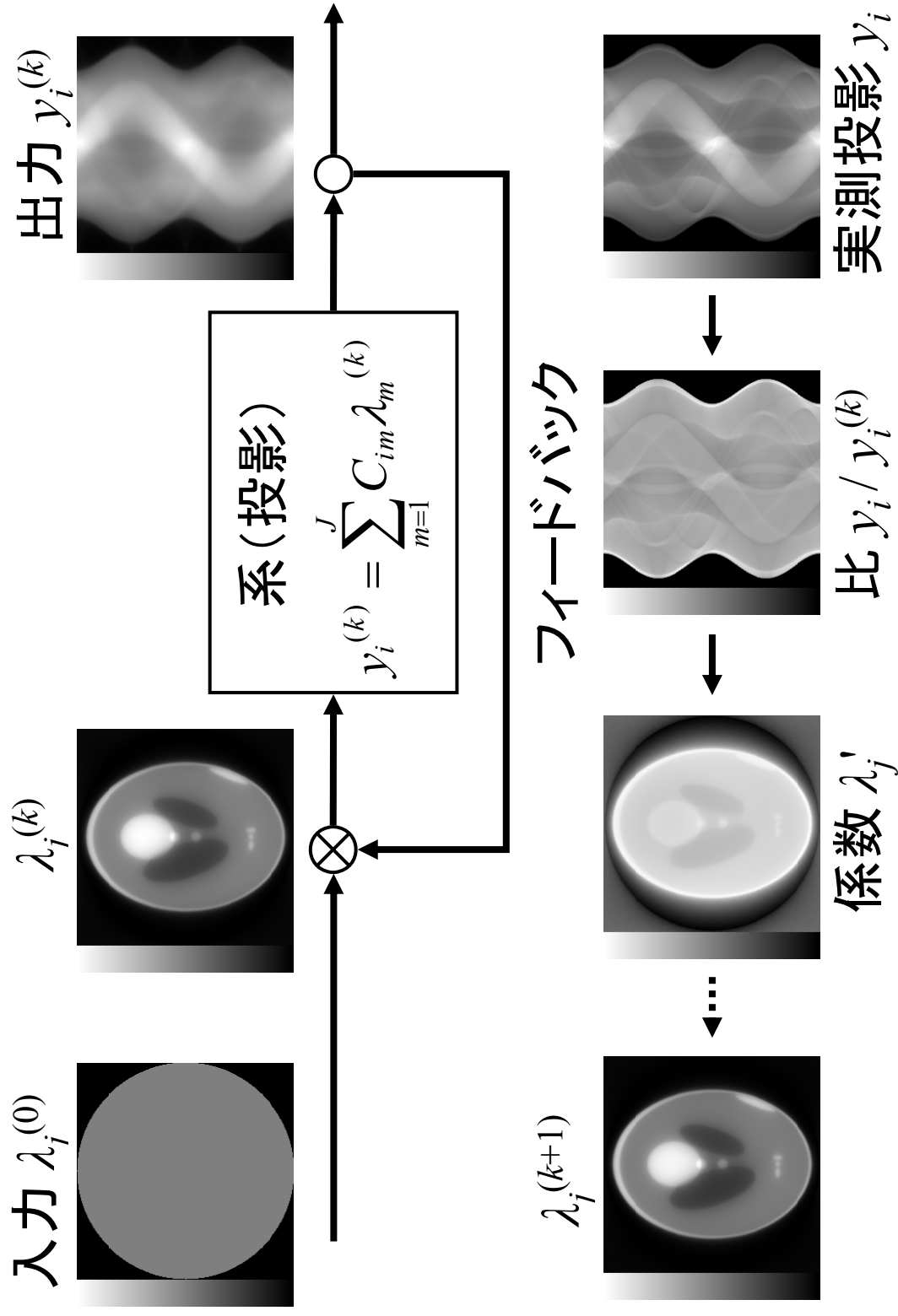


図6

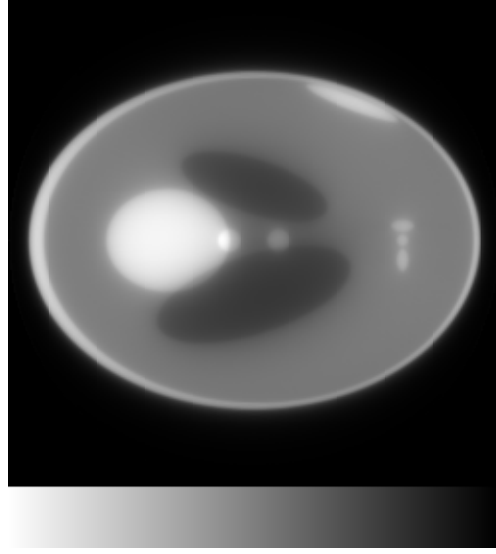


# ML-EM

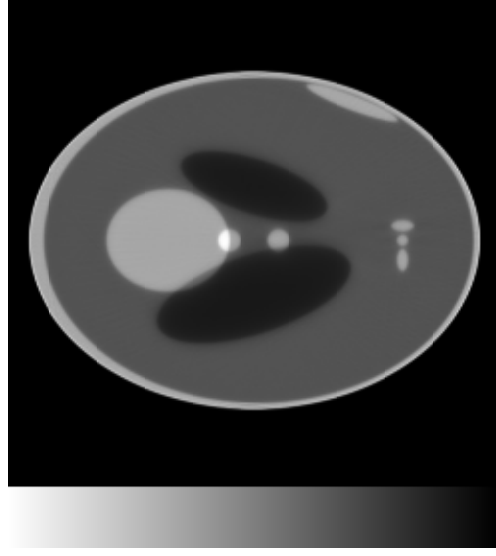
(a) 1 回



(b) 10 回

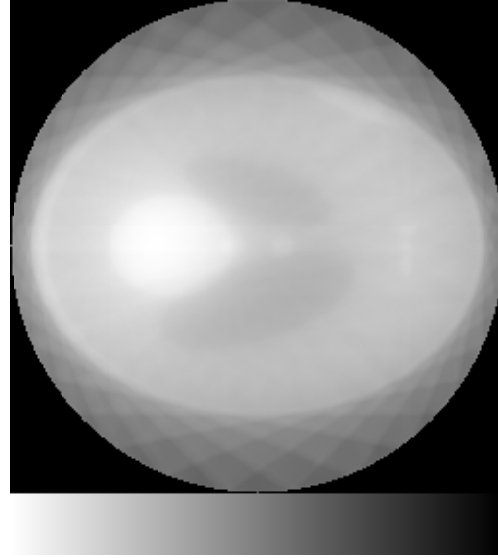


(c) 50 回

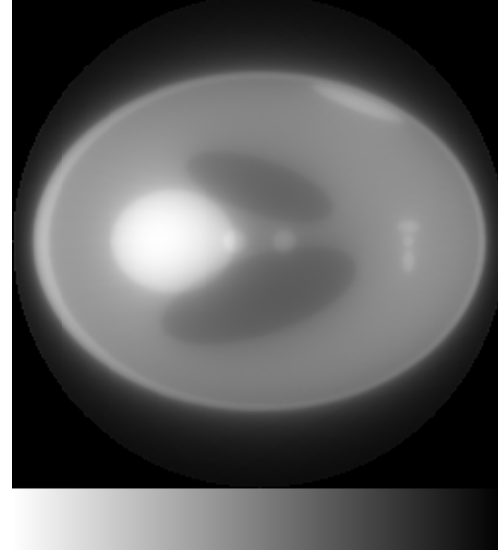


# OS-EM

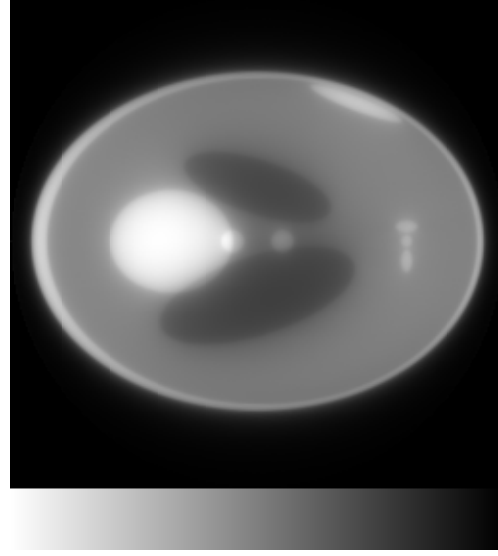
(a) サブセット 1

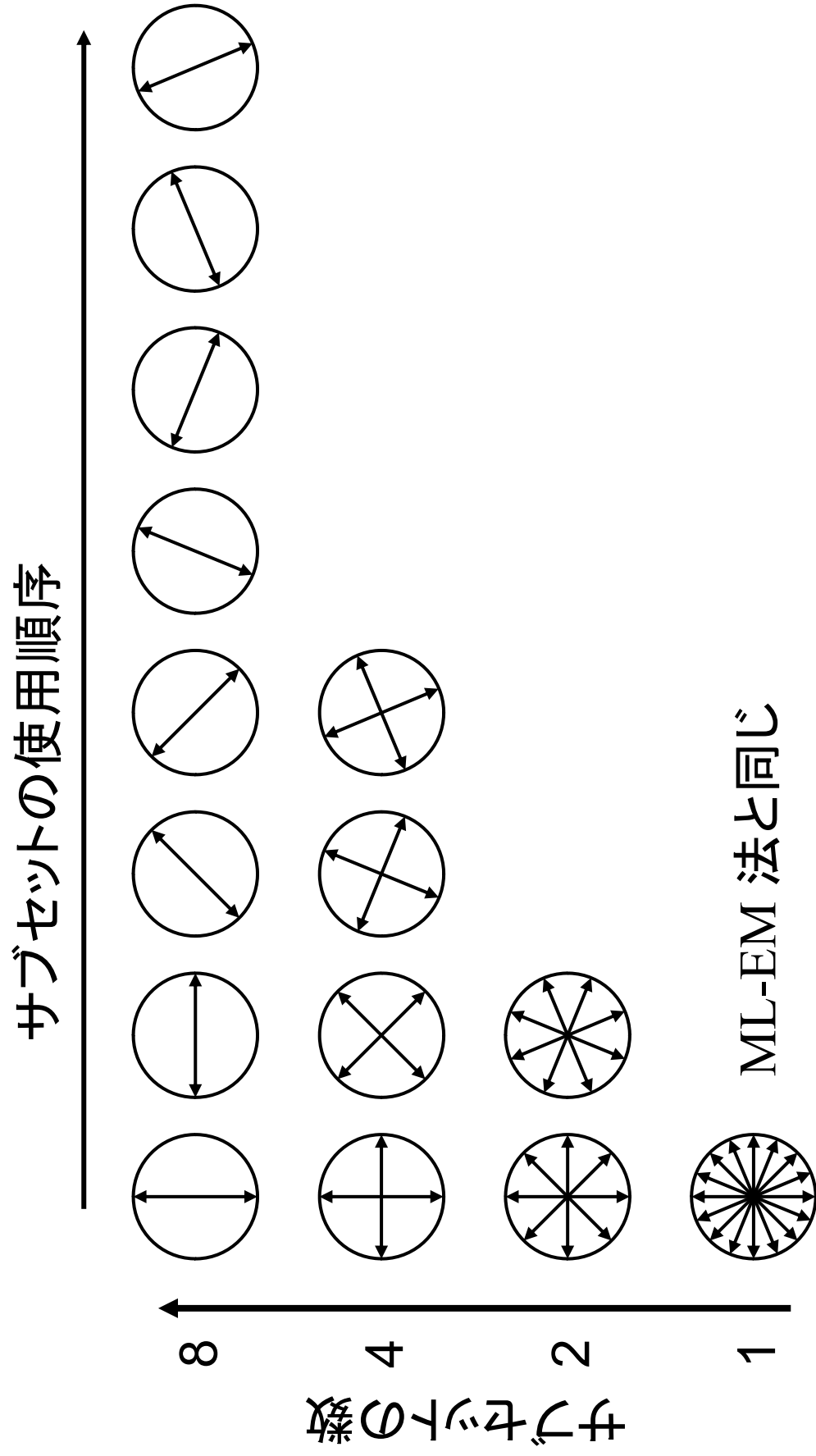


(b) サブセット 4



(c) サブセット 8







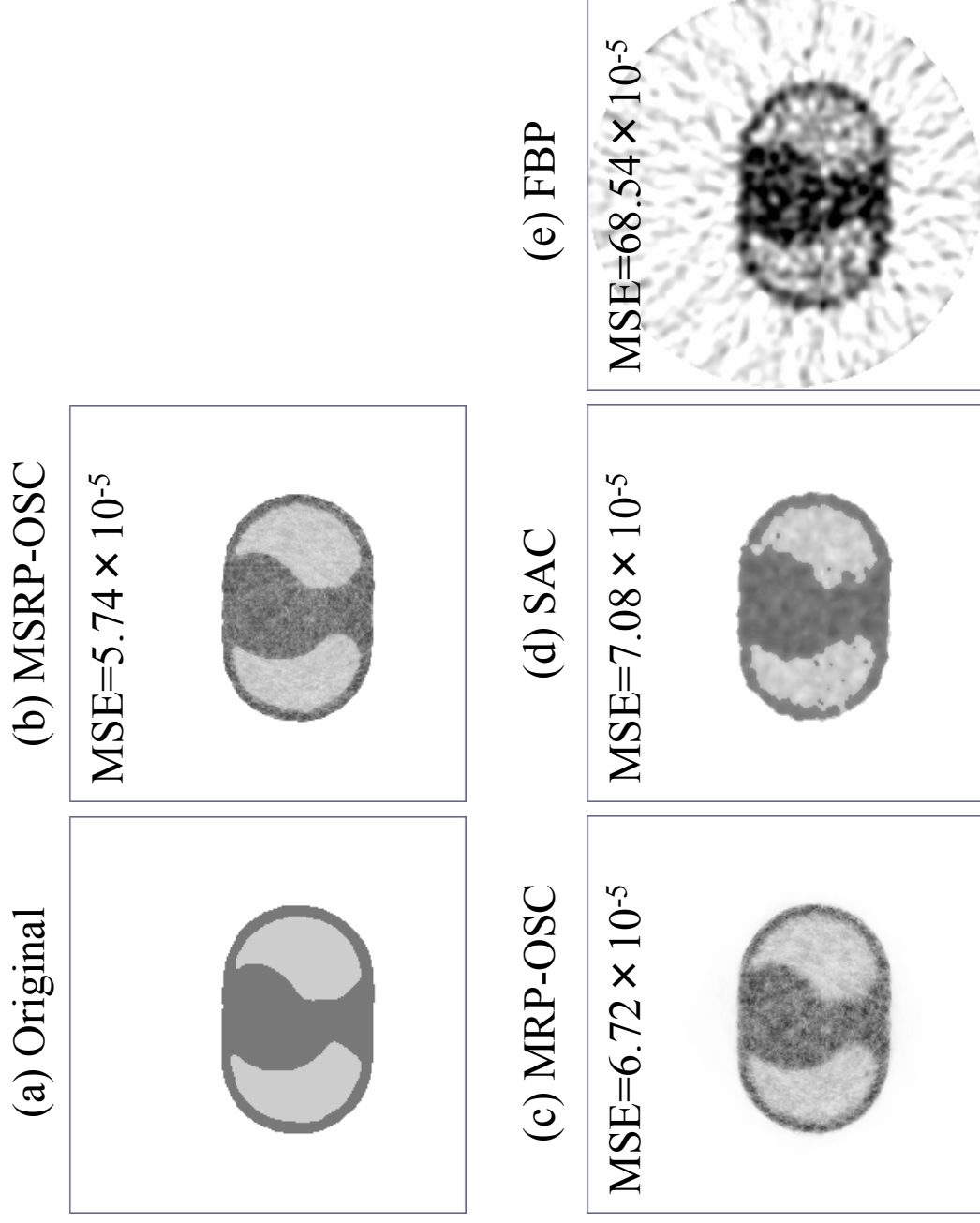
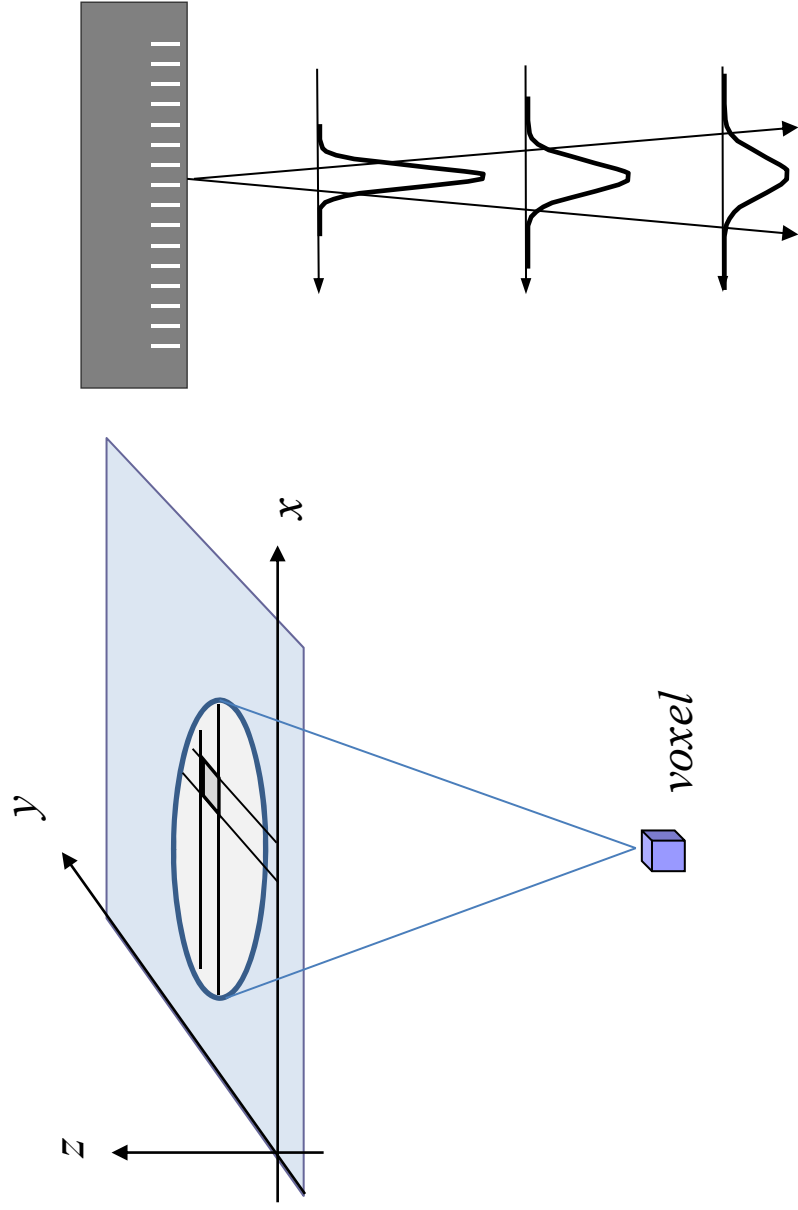
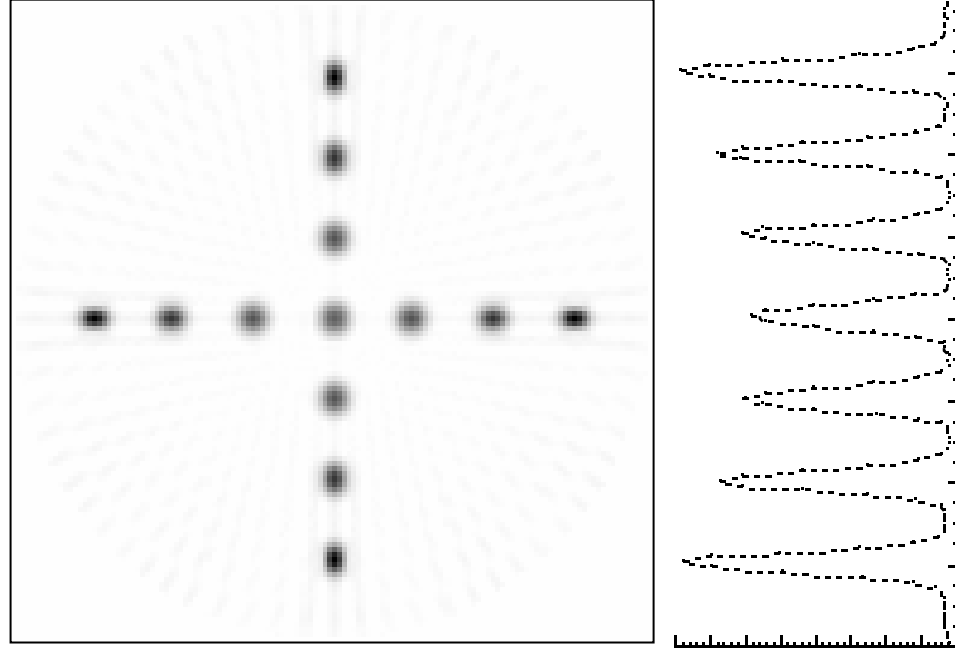


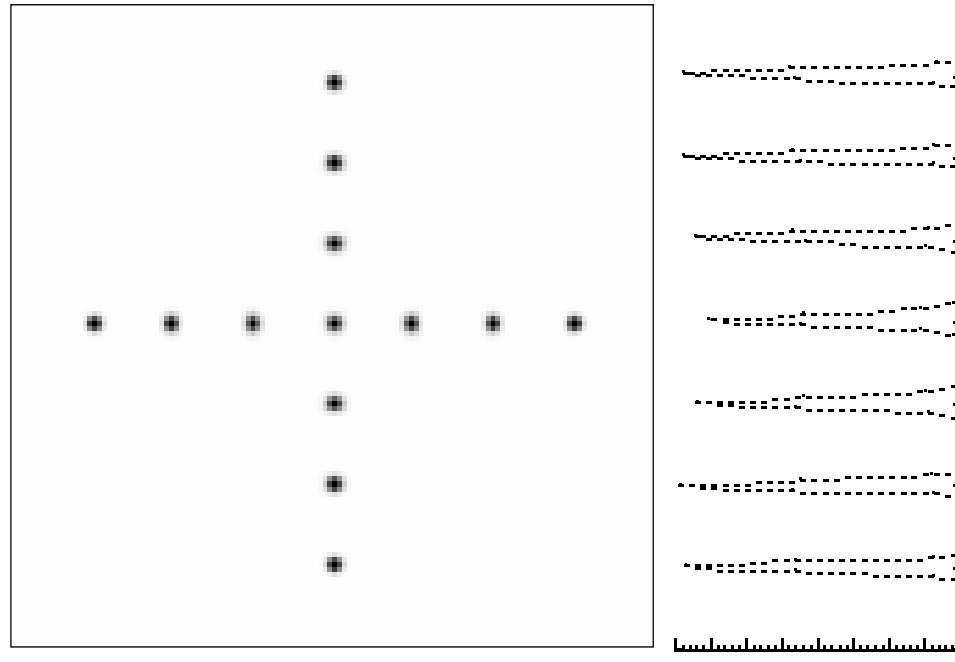
图10

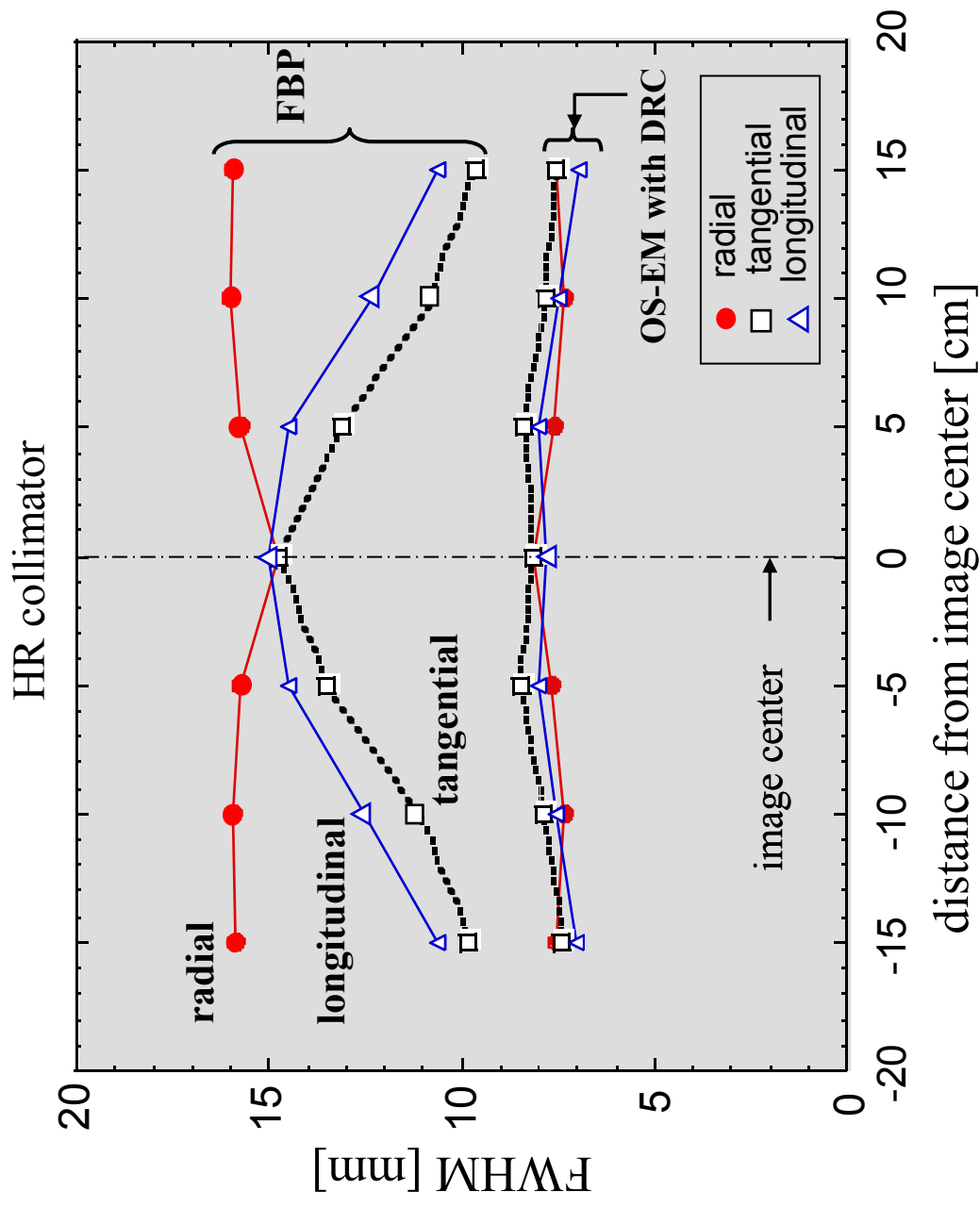


FBP (Ramp)

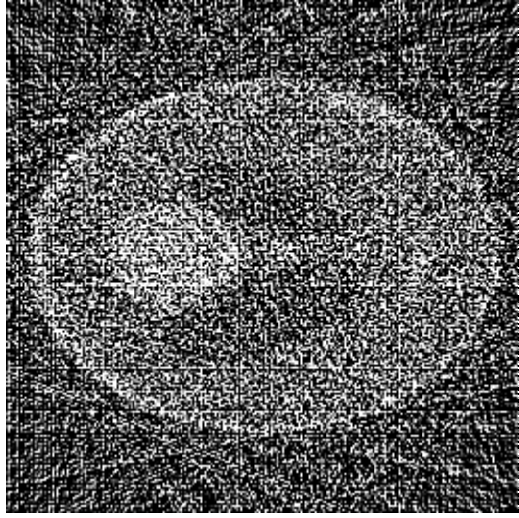


分解能補正OS-EM  
(subset = 2, itr = 25)

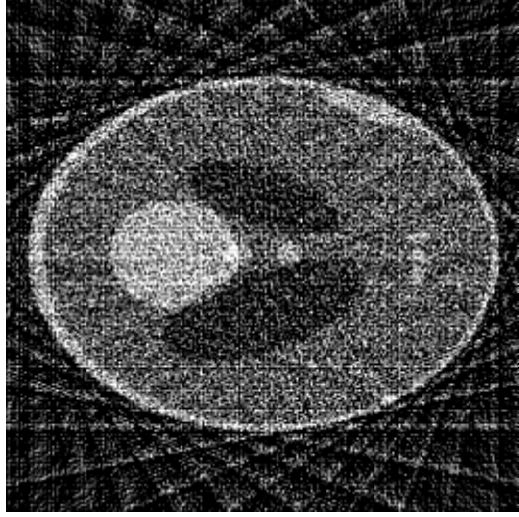




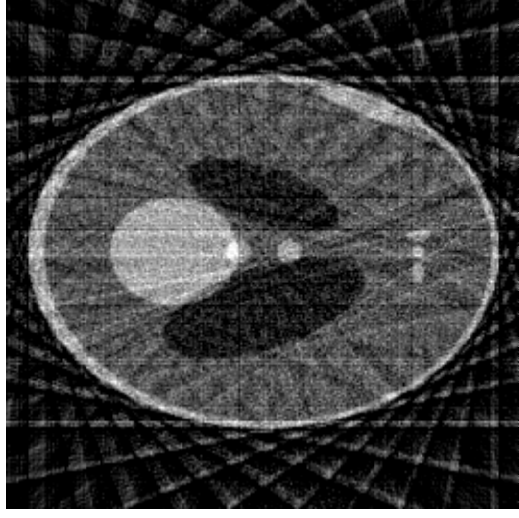
(a) FBP\_20dB



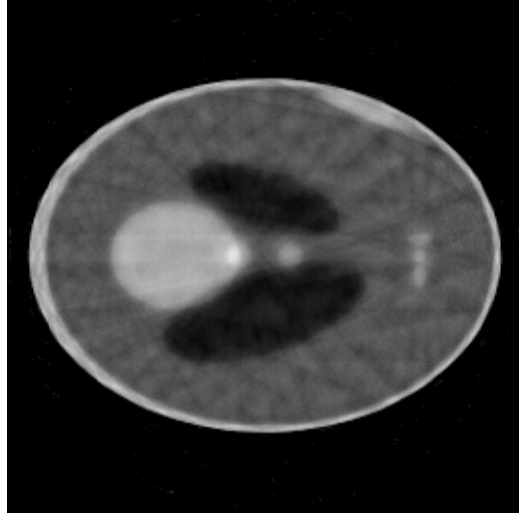
(b) FBP\_30dB



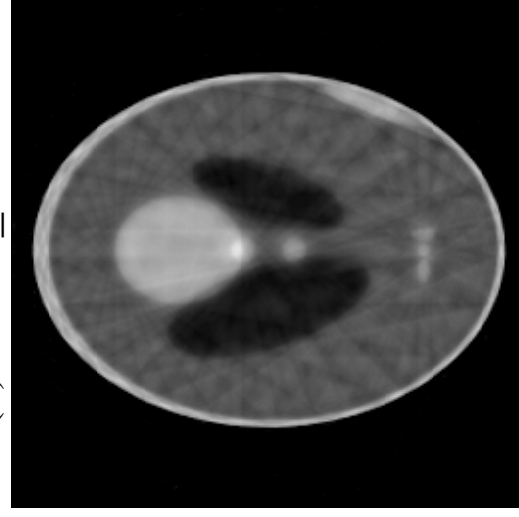
(c) FBP\_40dB



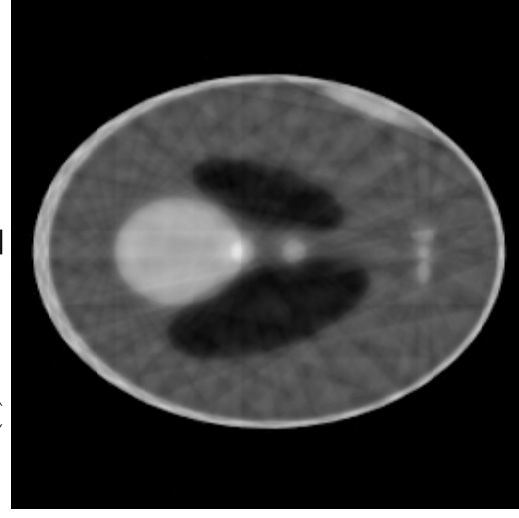
(d) AART\_20dB



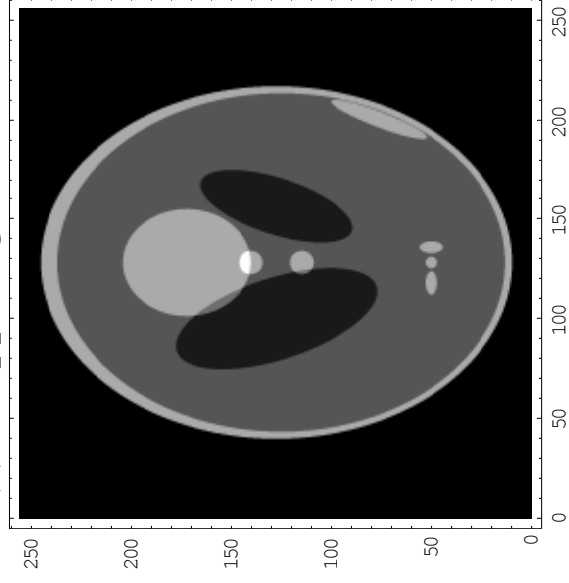
(e) AART\_30dB



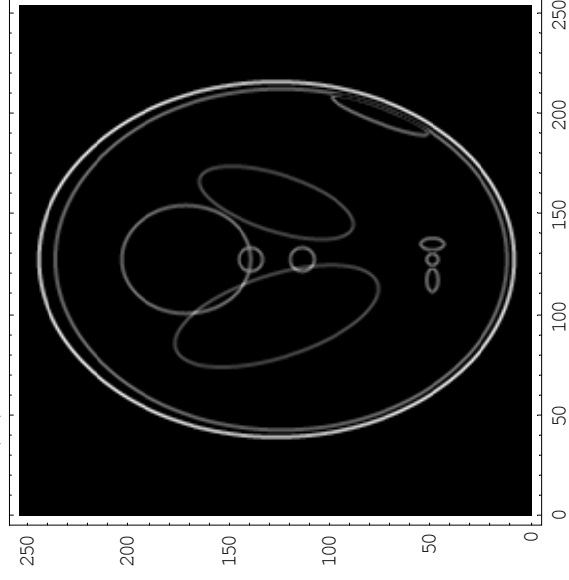
(f) AART\_40dB



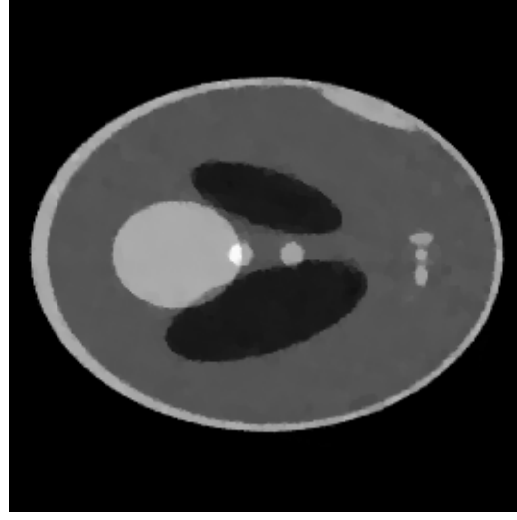
(a) Shepp-Logan ファントム



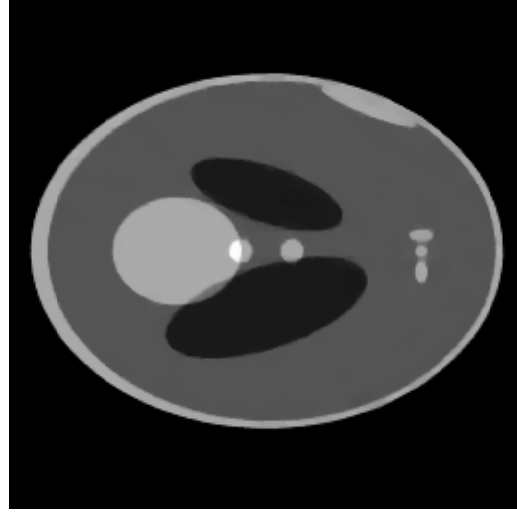
(b) 勾配画像



(c) AART\_TV\_20dB



(d) AART\_TV\_30dB



(e) AART\_TV\_40dB

