



$$y = Ax + \xi$$

Tomographic Measurement

```
A = linop.DiagonalStack(
    3*[linop.radon_astra.TomographicProjector(
        x.shape[1:], 1, x.shape[1], angles)],)
Ax = A @ x
w = scico.numpy.exp(-Ax)
W = linop.Diagonal(w)
ξ = σ * scico.random.randn(w.shape)[0] * (1/w) ** 0.5
y = Ax + ξ

C1 = linop.Identity(x.shape)
g1 = functional.NonNegativeIndicator()
C2 = linop.FiniteDifference(x.shape, axes=(1, 2), append=0)
g2 = α * functional.L21Norm(l2_axis=(0, 1))

solver = optimize.admm.ADMM(
    f=loss.SquaredL2Loss(y=y, A=A, W=W),
    g_list=[g1, g2],
    C_list=[C1, C2],
    rho_list=[1.0e0, 1.0e2],
    x0=scico.numpy.zeros(x.shape),
    maxiter=30,
    subproblem_solver=optimize.admm.LinearSubproblemSolver(
        cg_kwargs={"tol": 5e-5, "maxiter": 25}),
    itstat_options={"display": True, "period": 1})

x_hat = solver.solve()
```



$$\begin{aligned}\hat{x} &= \arg \min_{x \geq 0} \frac{1}{2} \|Ax - y\|_W^2 + \alpha \|Dx\|_{2,1} \\ &= \arg \min_x f(x) + \sum_{i=1}^N g_i(C_i x)\end{aligned}$$

Reconstruction