Dynamic Fluence Field Modulation with Multiple Aperture Devices (MADs): Design, Implementation, and Assessment

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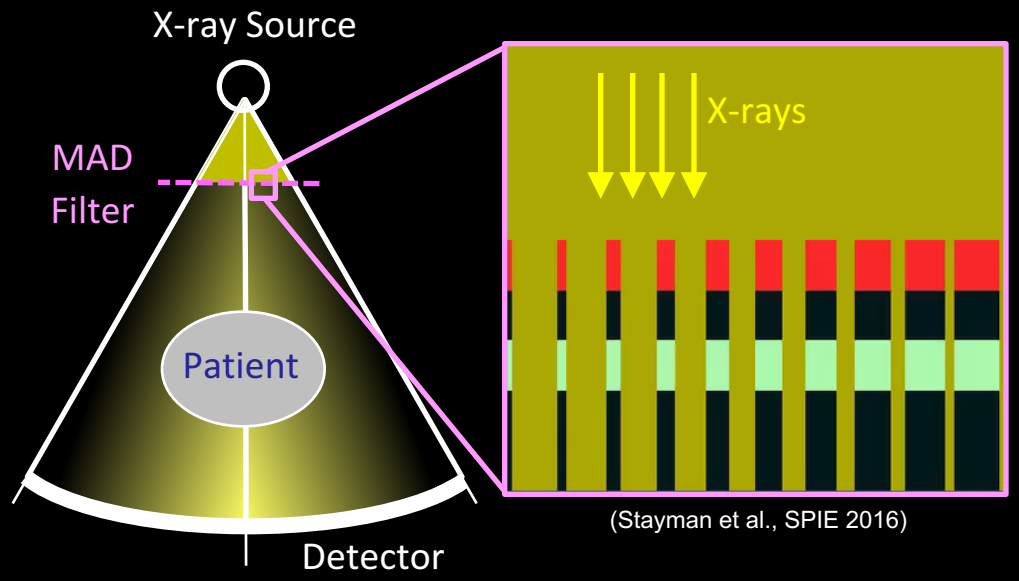
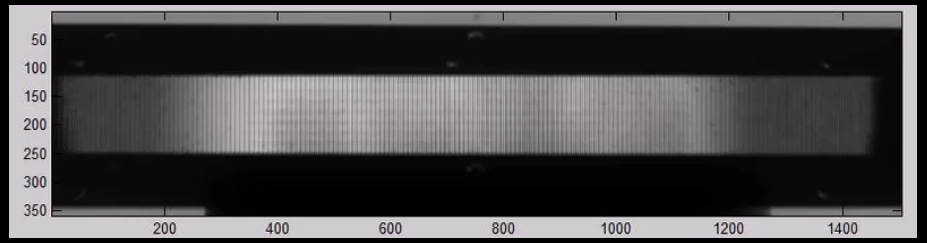
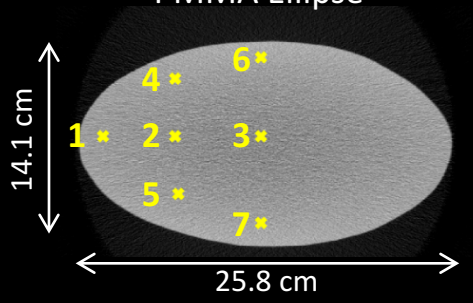
Computed Tomography II
08/01/2018| 10:15AM — 12:15PM



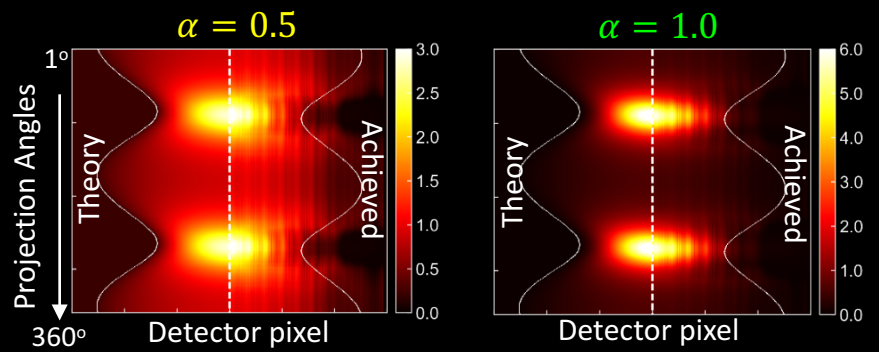
(Stayman et al., SPIE 2016)

Modulation profiles vs.
Displacements between MADs (Δ)

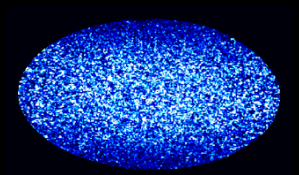




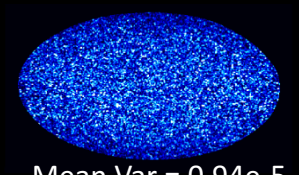
Fluence Modulation Profiles



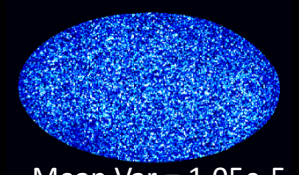
Variance Maps



Mean Var = 1.05e-5



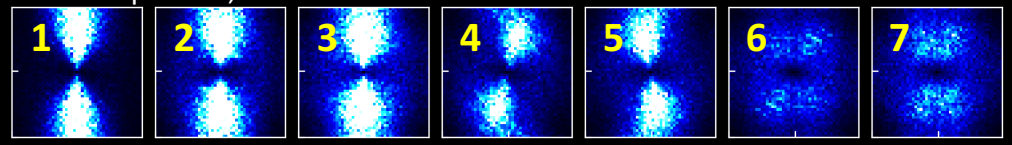
Mean Var = 0.94e-5



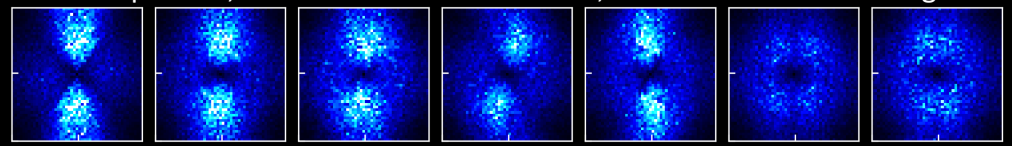
Mean Var = 1.05e-5

Local Noise Power Spectrum

Unmodulated:
Anisotropic NPS; max. variance at the center



$\alpha = 0.5$: Minimize mean variance in FBP
Anisotropic NPS; max. variance at the center; Less variation in var. magnitude



$\alpha = 1.0$: Flat fluence behind object
Isotropic NPS; homogeneous noise magnitude