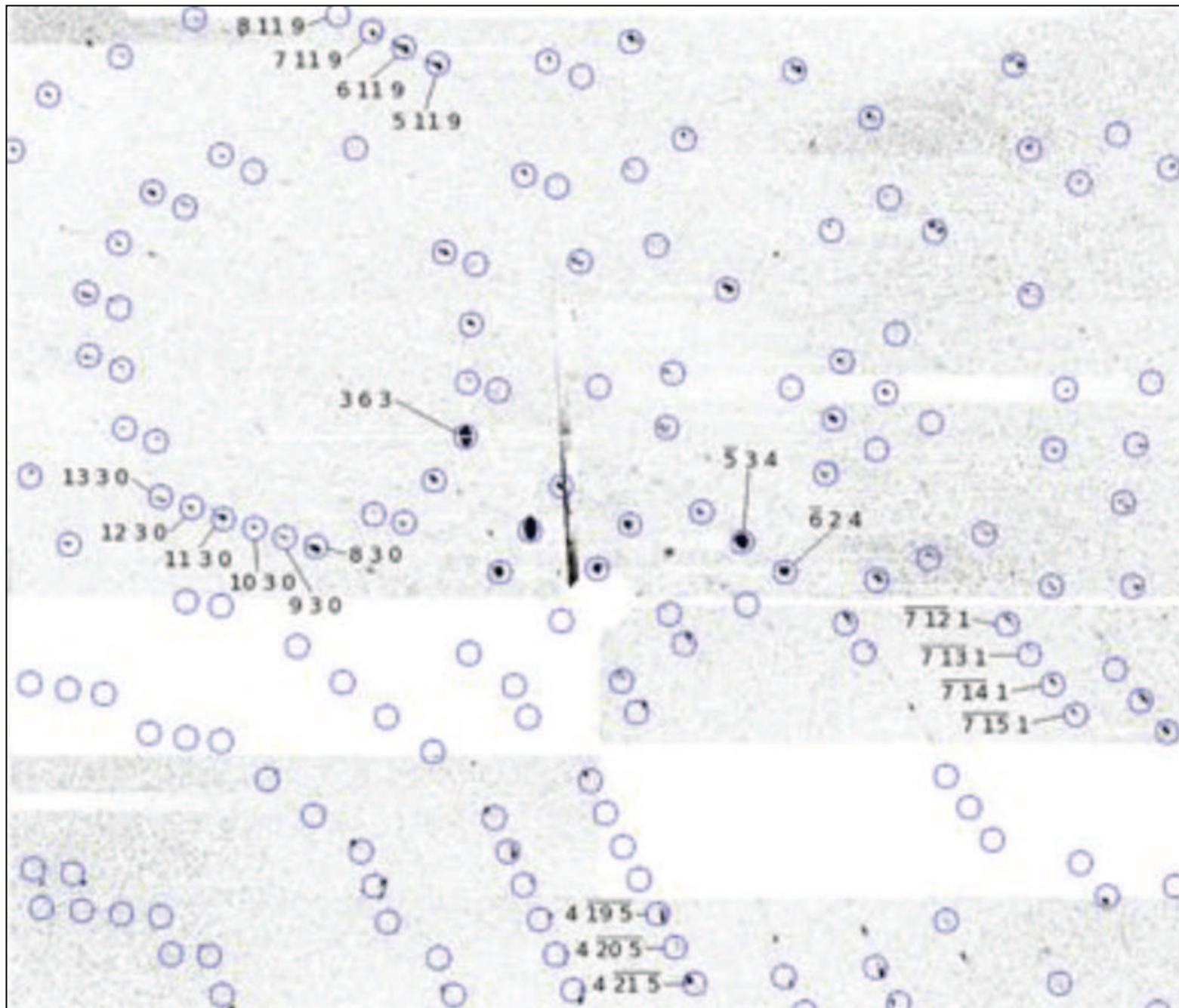
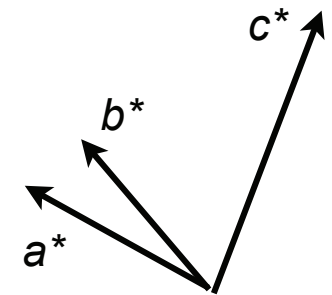


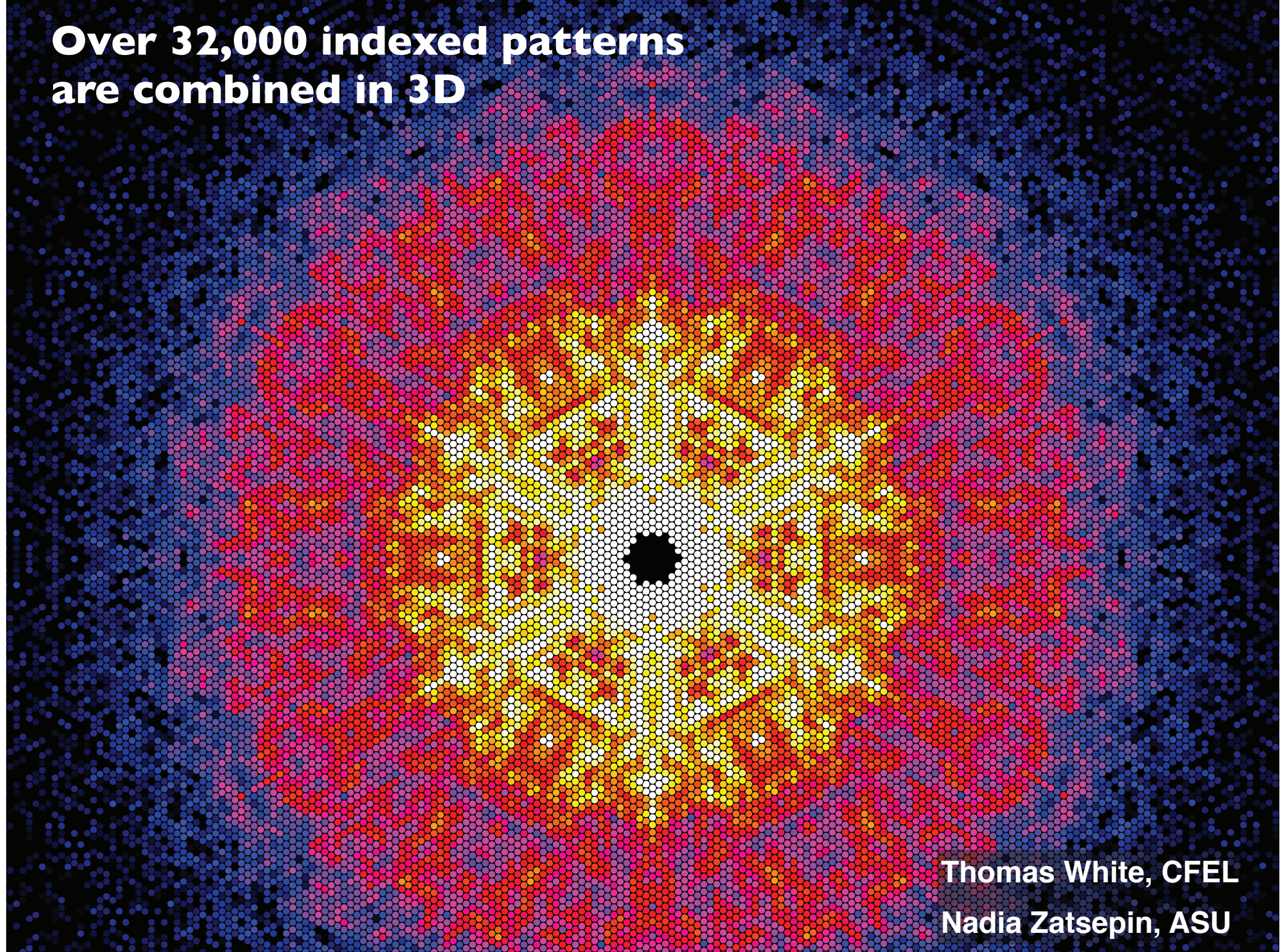
Each pattern is indexed



Tom White (CFEL)
Rick Kirian (ASU)



**Over 32,000 indexed patterns
are combined in 3D**



Thomas White, CFEL

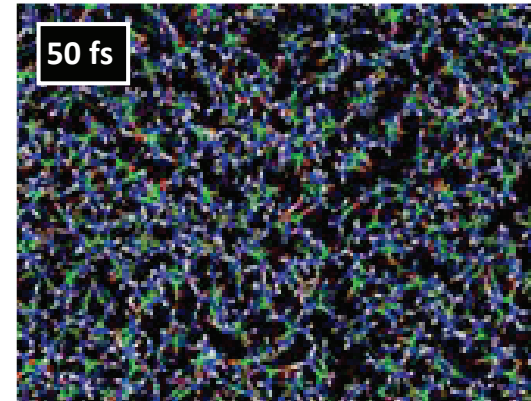
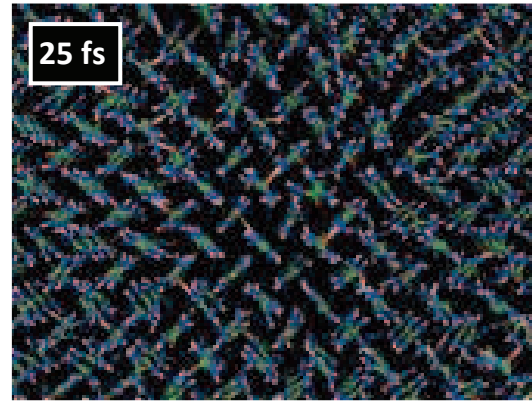
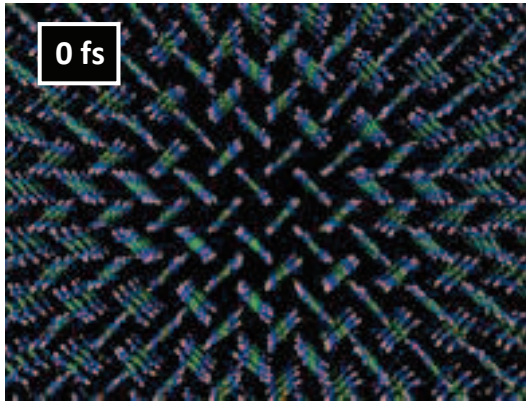
Nadia Zatsepin, ASU

Molecular replacement reconstructs the 3Å structure at 9 keV photon energy

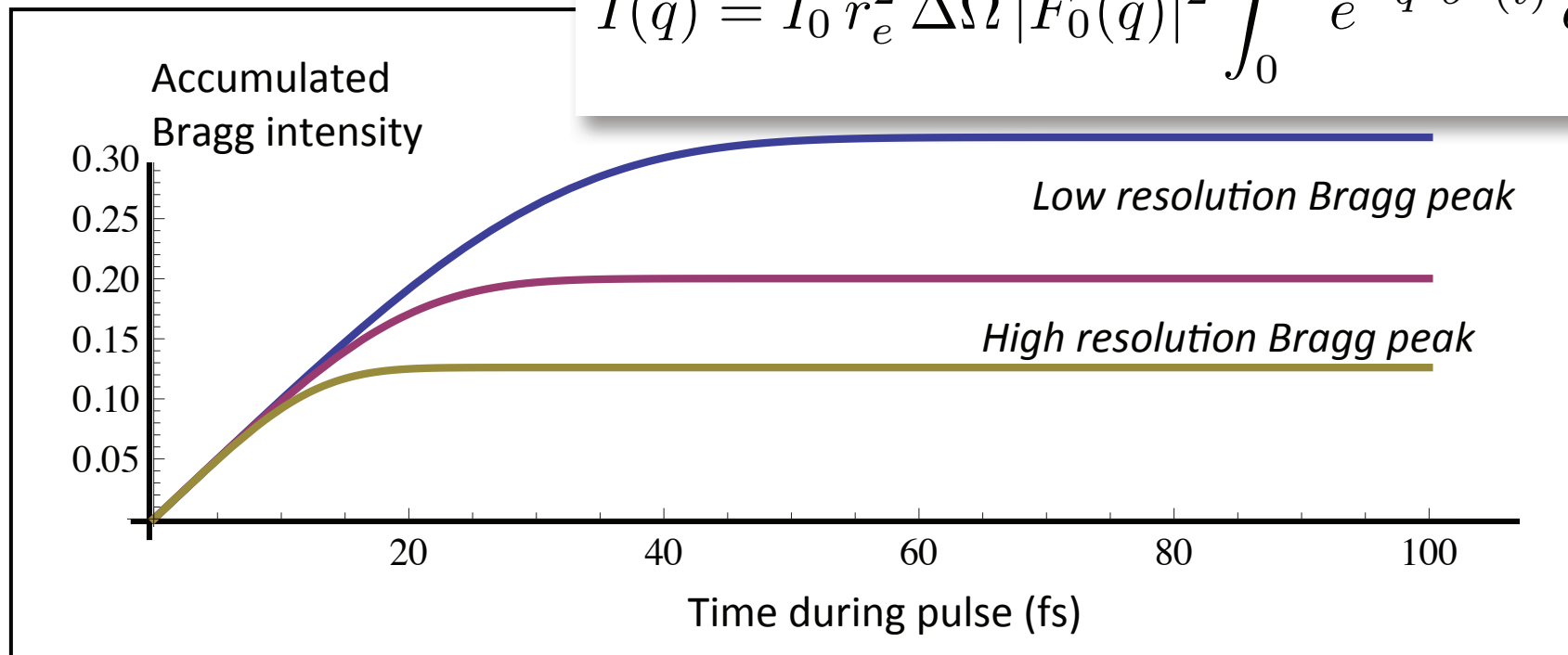
50 MGy / pulse
 1.2×10^{17} W/cm²

Axel Brunger (Stanford)
using **DEN**

A crystal only gives Bragg diffraction when it is a crystal!

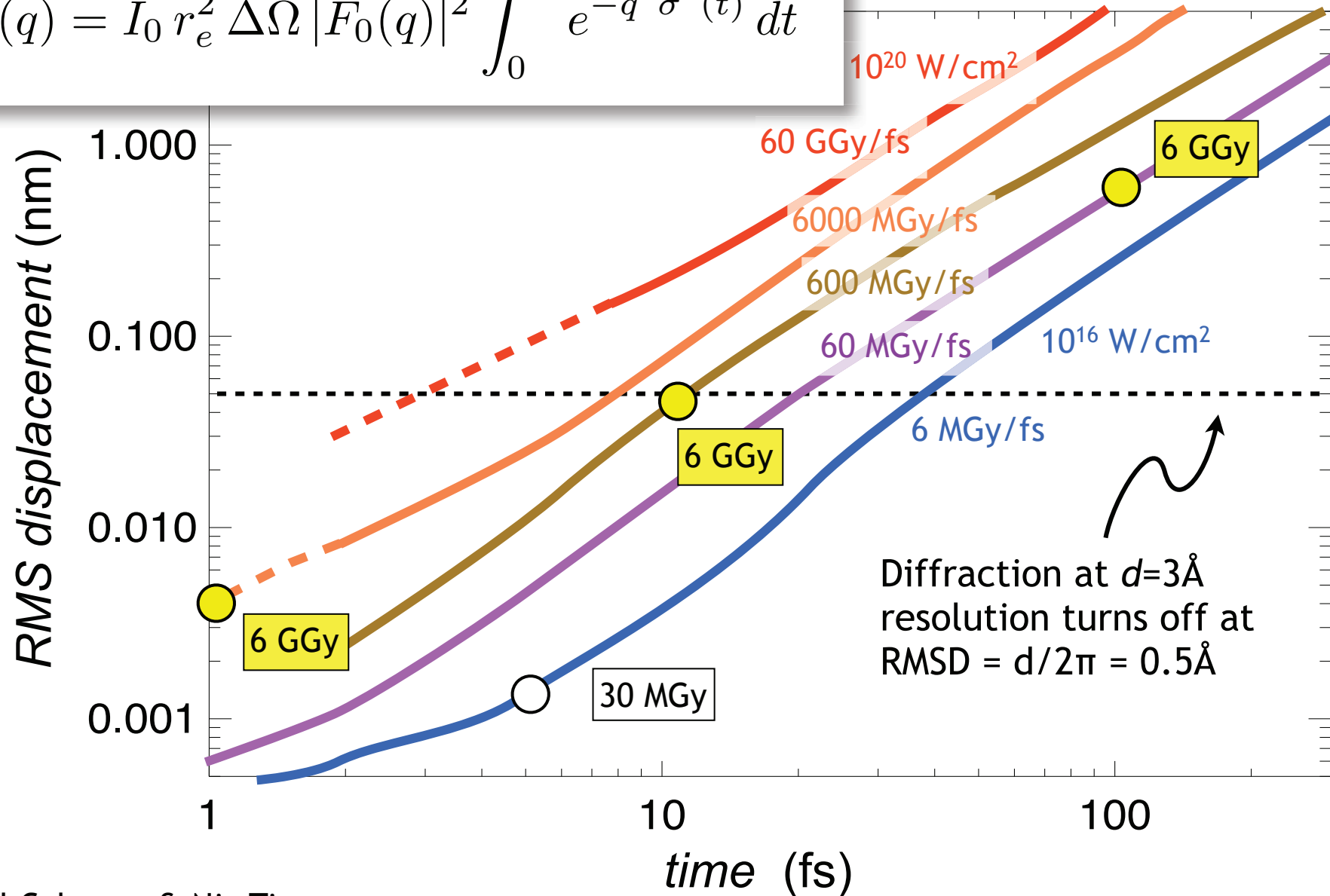


$$I(q) = I_0 r_e^2 \Delta\Omega |F_0(q)|^2 \int_0^T e^{-q^2 \sigma^2(t)} dt$$



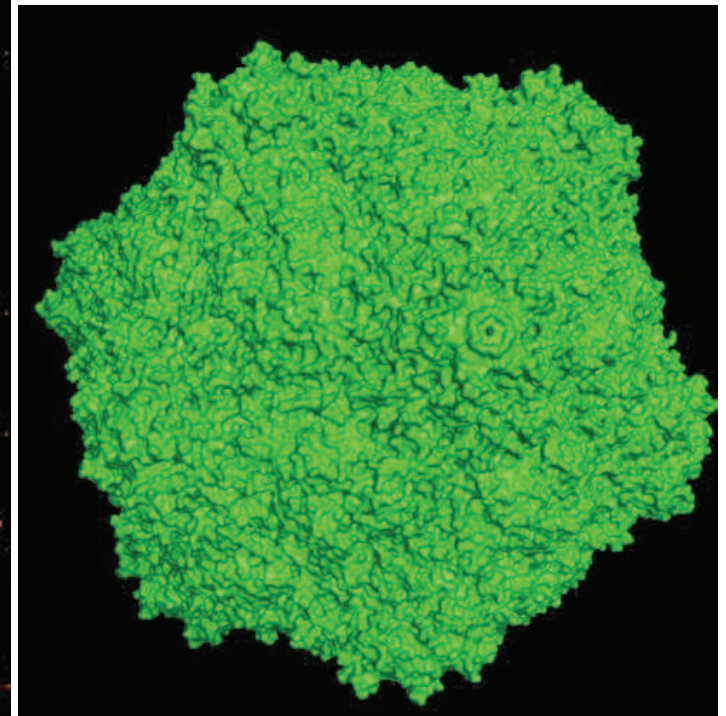
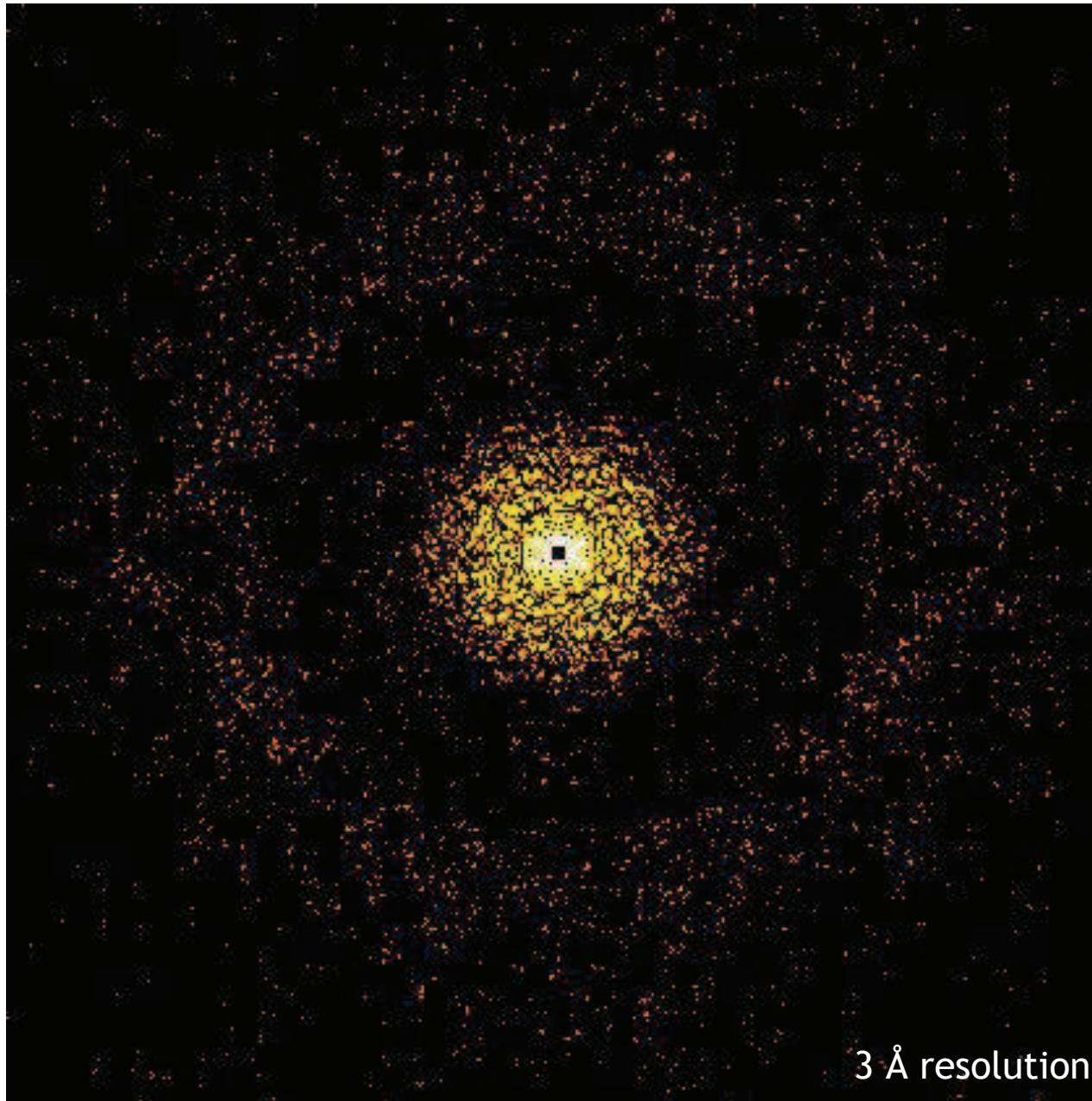
The explosion accelerates during the pulse

$$I(q) = I_0 r_e^2 \Delta\Omega |F_0(q)|^2 \int_0^T e^{-q^2 \sigma^2(t)} dt$$



Carl Caleman & Nic Timneanu

Atomic-resolution diffraction from single particles should be possible with 10^{14} ph/ μm^2



← 28 nm →

10^{14} ph/ μm^2

60 GGy

6000 MGy/fs $\times 10$ fs

RMS displacement: 0.5 Å
half electrons ionized