ZERNIKE INSTITUTE COLLOQUIUM

Thursday, June 4th, 2015

16:00h, Lecture Hall: 5111.0080

Coffee and cakes from 15:30h

Protein structure and dynamics using X-ray free-electron laser pulses

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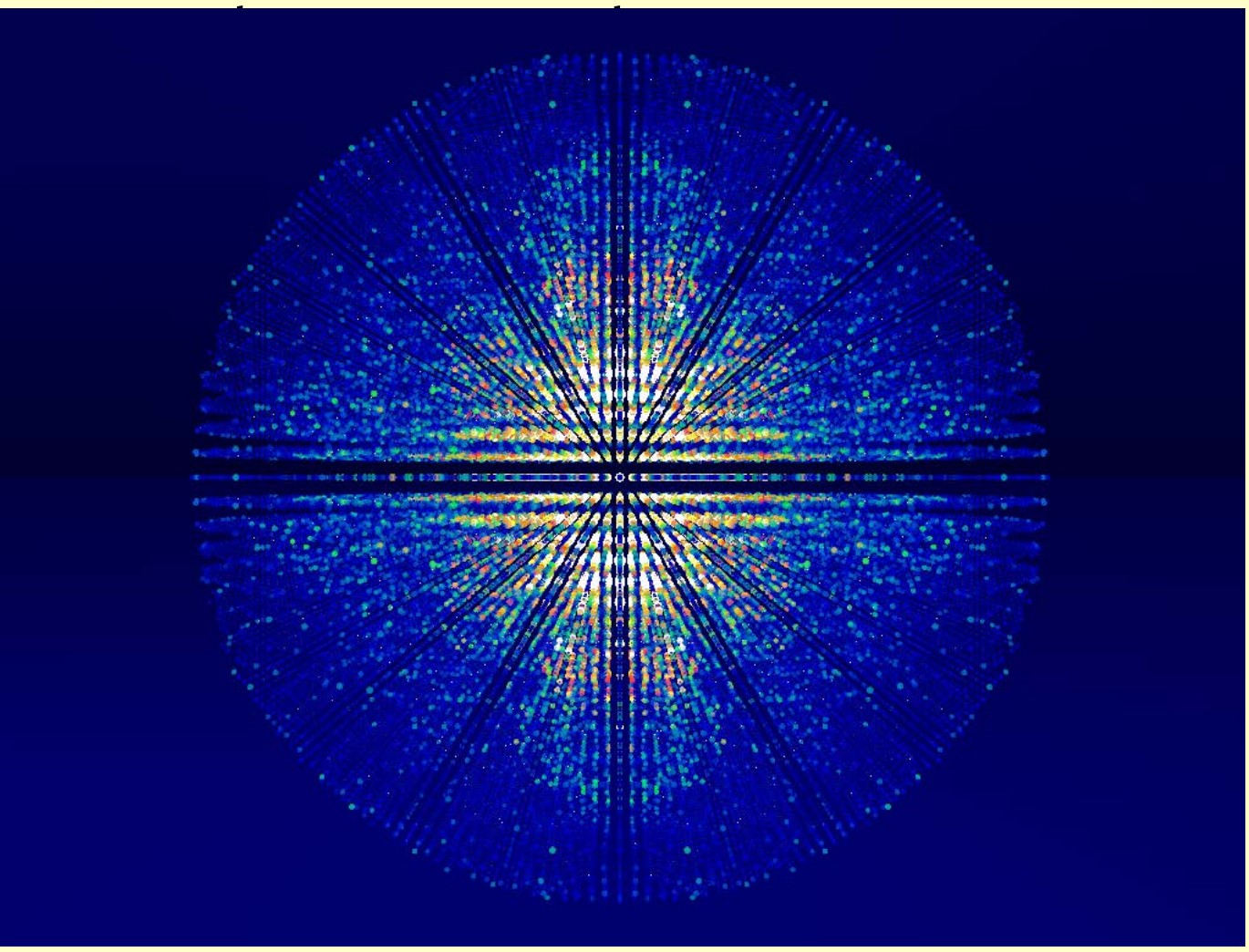
X-ray free-electron lasers provide a new disruptive technology for protein structure determination. The femtosecond pulses outrun radiation damage of the sample, allowing room temperature measurements at high resolution with a dose thousands of times higher than tolerable with



Combined with high frame-rate detectors and novel sample delivery methods we have a new paradigm of serial crystallography in which snapshot diffraction patterns are collected from single grains in a flowing suspension and then combined to give a set of structure factors.

Irreversible reactions can be studied, synchronised with the short pulses, with new sample being constantly replenished. We have yet to reach the limit of the smallest samples that can be studied this way, and many innovations indicate the feasibility of single molecule diffractive imaging.

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