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Serial Femto Second Crystallography

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Serial femtosecond crystallography (SFX) usually involves a liquid jet of many (approximately 108) small crystals injected into the interaction point of an X-ray free-electron laser (XFEL). The high-flux, femtosecond pulses available at XFELs enable a 'diffract before destruction' approach, yielding Bragg reflections in single-shot frames from individual submicrometre crystals. The femtosecond duration of data collection eliminates the role of beam damage²⁶. The data collection occurs at room temperature using a liquid jet of suspended crystals, preserving the integrity of samples that may be sensitive to freezing or desolvation. Sample preparation involves loading a sample suspended in solvent into a pump syringe that is attached to a jet delivery system.

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