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Molecular Biotechnology Programme

Uppsala University School of Engineering

UPTEC X 04 046	Date of issue 2004-11	
Author Leonard Csenki		
Title (English) Reconstruction of diffraction space from noisy diffraction images		
Title (Swedish)		
Abstract Determination of structures using classic X-ray crystallography is limited to particles or molecules that can be crystallized. Without a crystal, the signal is too weak. If the intensity is raised, radiation damage destroys the sample before sufficient information has been gathered, at least on the time scale of the presently available X-ray pulses. New light sources may provide X-rays with extremely intense and short wave lengths. These X-rays may be used to take snap shots of single particles before radiation damage destroys the sample. The particle will most probably have random orientation during the exposure and since the X-ray pulse will destroy it, the sample preparation has to be reproducible. The diffraction images will be noisy. Averaging of several similar images may enhance the signal to noise ratio. Here, ways of finding similar images, without any knowledge of the orientation, are presented. Also an orientation reconstruction method has been developed.		
Keywords Diffraction imaging, single particle, X-ray free electron laser, clustering, common lines		
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Project name	Sponsors	
Language English	Security	
ISSN 1401-2138	Classification	
Supplementary bibliographical information	Pages 47	
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