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Kappa Goniometry

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Most of the high throughput developments are aiming to automate routine steps. Unfortunately, this gives restrictions while
performing non-standard experiments. Kappa goniometres have been used in the past by an elite group of expert crystallographers.
These systems had serious instrumentational design and usability limitations. As a consequence, most synchrotron MX beamlines
nowadays are no longer compatible with the traditional Kappa goniometers.
However, the call for more degrees of freedom to re-orient the sample has never completely faded. The reimplementation of "old" methods of collecting truly redundant data is becoming more and more important with the increased use of very small anomalous signals for solving macromolecular structures.
The construction of a MiniKappa Goniometer Head has allowed us to reduce one of the major risks of traditional multi-axes goniometers: that of collisions. This small device offers routine crystal re-orientation and fast data collection sweeps without stability problems.
We ensured it to be fully compatible with the requirements of modern High Throughput beamlines.
A comprehensive software package that includes modules for calibration, 3D virtual beamline simulation, crystal re-orientation calculation, automated sample re-centring as well as smart multi-pass strategy calculation is being developed and integrated with the data collection system DNA (automateD collectioN of datA).