Steca, the stress and texture calculator

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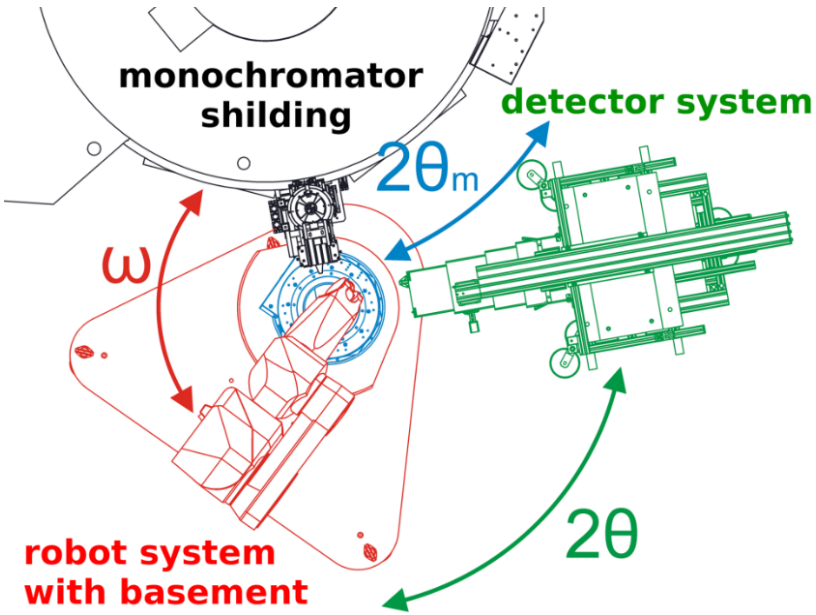

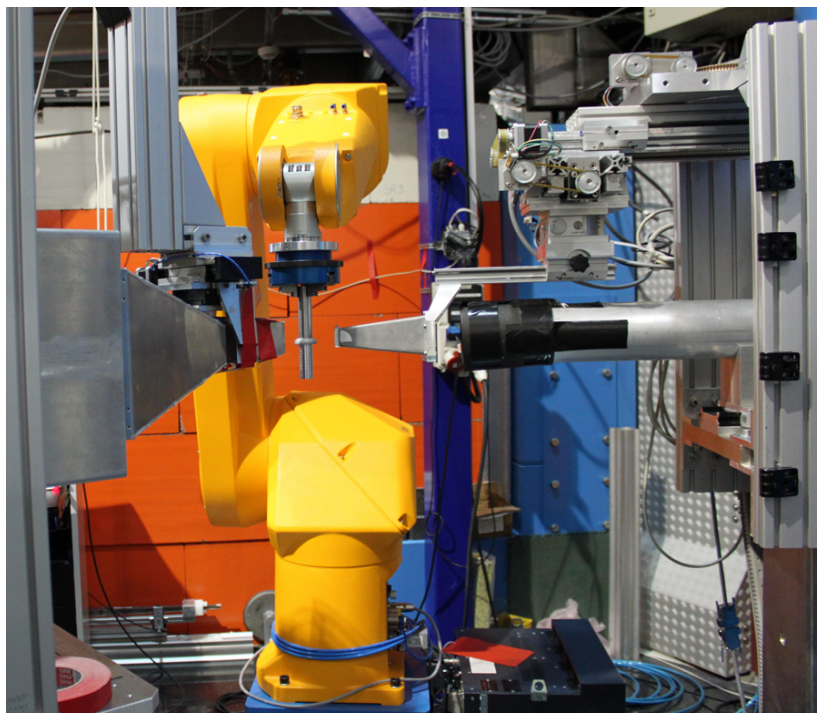

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StressTextureCalculator: a software tool to extract texture, strain and microstructure information from area-detector measurements

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Modern materials science diffractometers are generally equipped with area detectors that allow a high time efficiency to be achieved by simultaneously collecting the scattering pattern over large angular regions. These area-detector-based instruments, however, produce a huge amount of data, especially if they are located at large-scale neutron or synchrotron sources. The software *StressTextureCalculator* (*STeCa*) was designed to facilitate fast, easy and automated access to such area-detector data. Its outstanding features are direct calculation of diffraction patterns from different types of area-detector measurements, automatic data treatment and peak fitting using several implemented fit options. The resulting information on intensity, peak shift and broadening can then be exported into several data formats. These in turn can be used as input for a wide range of texture, stress and microstructure analysis software packages without additional prior treatment.

Steca history

–2010	Randau	published STeCa
–2012	Randau	PhD thesis
–2015	Randau	unfinished rewrite
2015–2016	Burle, Soininen, student	refactored Steca v2.0
2017	Burle	unfinished rewrite
2017–	Wuttke	refactoring $\rightarrow$ v2.1

Steca is free and open source

`http://apps.jcns.fz-juelich.de/steca`

`https://github.com/scgmlz`

licence: GPL v3 or higher