PPDA: A program for extracting Image Plate powder data from Weissenberg cameras

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The Australian National Beamline Facility (ANBF) includes a large Debye-Scherrer camera equipped with Weissenberg screens and a translatable Image Plate (IP) holder. This allows up to 30 powder data strips to be recorded on a single set of IPs. PPDA (short for Python Powder Data Analyse) has been developed over the last 10 years for extracting the powder data contained in the exposed strips on these IPs.

PPDA is able to read and display raw IP data from various sizes and generations of IP scanners, and has been tested with data from the ANBF and similar facilities at the APS, and SPring-8. An intelligent algorithm will automatically detect and extract strips with nominal angular scale, but if beam registration marks (e.g. SPring-8 BL02) or embedded fiducial data (e.g. ANBF) are available the angular scale can be calibrated prior to strip extraction. Data can be output in pdCIF-conformant formats as well as formats suitable for input to LHPM/Rietica and GSAS. The output CIF can be configured to include general beamline information (e.g. monochromator-sample distance and beam divergence).

Output angles can optionally include corrections for IP rotation introduced in the IP scanner, with the rotation angle determined either from the beam registration marks or fiducial markers.

PPDA is a portable program written in Python with the Tkinter toolkit, and has been tested on Windows and Linux platforms. It is freely available from http://anbf2.kek.jp/ppda/ppdapage.html.