PXO: Poly-XTAL operations V10.00. Free MATLAB codebase to generate and analyse complex 2D poly-crystalline grain structures

**For use with 3rd party applications V1.0**

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**Author contributions**

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| Sunil Anandatheertha | Conceptualization, Software development and maintenance, documentation and manuscript preparation |

## MTEX

**Compatibility version**: mtex5.04

Poly-XTAL operation” maps texture based crystalline orientations to each lattice site and constructs a CTF file commonly used by the EBSD community, which can then be easily imported into MTEX using the command “EBSDDATA= **loadEBSD(**'CTF\_FILE\_NAME.ctf**')**”. Once imported, all MTEX grain structure and texture analysis tools become available on all the temporal slices of grain structure formed using Poly-XTAL Operations.



Figure 7: Grain structure exchange between Poly-XTAL Operations 9.04 and MTEX 5.04 (a) Poly-XTAL Operations (b) Grain boundary mis-orientations calculated using MTEX (c) MTEX calculated grain shape distribution for the grain structure made in Poly-XTAL Operations 9.04

## MTEX2GMSH



Figure 9: (a) Grain structure in Poly-XTAL Operations (b) Region inside the grain structure (c and d) Triangular and Quadrilateral mesh for the highlighted region in the grain structure, made using mtex2gmsh routine called from MTEX 5.04

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