A multimodal data-set of a unidirectional glass fibre reinforced polymer composite - DTU Orbit (06/01/2019)

A multimodal data-set of a unidirectional glass fibre reinforced polymer composite (GFRP) was scanned at varying resolutions in the micro-scale with several imaging modalities. All six scans capture the same region of the sample, containing well-aligned fibres inside a UD load-carrying bundle. Two scans of the cross-sectional surface of the bundle were acquired at a high resolution, by means of scanning electron microscopy (SEM) and optical microscopy (OM), and four volumetric scans were acquired through X-ray computed tomography (CT) at different resolutions. Individual fibres can be resolved from these scans to investigate the micro-structure of the UD bundle. The data is hosted at https://doi.org/10.5281/zenodo.1195879 and it was used in [1] to demonstrate that precise and representative characterisations of fibre geometry are possible with relatively low X-ray CT resolutions if the analysis method is robust to image quality.

General information
State: Published
Pages: 1388-1393
Publication date: 2018
Peer-reviewed: Yes

Publication information
Journal: Data in Brief
Volume: 18
ISSN (Print): 2352-3409
Ratings:
Scopus rating (2017): CiteScore 0.7
Scopus rating (2016): CiteScore 0.5
Scopus rating (2015): CiteScore 0.25
Original language: English
Keywords: Geometrical characterisation, Polymer-matrix composites (PMCs), Volumetric fibre segmentation, Automated fibre tracking, X-ray imaging, Microscopy, Non-destructive testing
Electronic versions:
HKKR_1_s2.0_S2352340918303901_main.pdf
DOIs:
10.1016/j.dib.2018.04.039
Research output: Research - peer-review › Journal article – Annual report year: 2018