**Three-Dimensional Printing of Flow-inspired Anisotropic Patterns with Liquid Crystalline Polymers**

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**Dataset description**

Single\_line\_dataset.json or single\_line\_dataset.mat

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| IDsample |  | Unique identifier of a printed line |
| nozzle | mm | Nozzle diameter used for the print |
| t\_avg | µm | Average thickness of a printed line |
| width\_avg | mm | Average width of a printed line |
| gaugelength | mm | Initial grip-to-grip separation before deformation of the sample |
| deformation | mm | Deformation of the specimen compared to initial gauge length |
| force | N | Force recorded during tensile test |
| maxStrength | MPa | Maximum strength attained during test |
| Emodulus | GPa | Young’s modulus measured during test, between 0.1 and 0.3% strain. |

Buckling\_dataset.json or Buckling\_dataset.mat

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| name |  | Unique identifier of a printed plate |
| LocalCurvature | m-1 | Nozzle diameter used for the print |
| deformation | mm | Deformation of the specimen compared to initial gauge length |
| force | N | Force recorded during tensile test |
| maxForce | N | Maximum force recorded during test |
| maxForceLinear | N | Maximum force recorded until a max of 100 N deviation to linear behaviour is observed |

Crackshield\_dataset.json or crackshield\_dataset.mat

|  |  |  |
| --- | --- | --- |
| **Variable** | **Unit** | **Description** |
| name |  | Unique identifier of a notched SENT specimen |
| family |  | ‘90’ for unidirectional specimens, ‘W’ for woodknot patterns and ‘S’ for spiralling patterns. |
| strain |  | Strain recorded (deformation/gauge length) |
| force | N | Force recorded during tensile test |
| SA | mm | Radius the circle containing the pattern |
| maxForce | N | Maximum force recorded until a max of 100 N deviation to linear behaviour is observed |
| MoT | MPa | Modulus of Toughness (area under the curve until break point) |
| FailAtCrack |  | 1 if the specimen has failed in the patterned zone, 0 if the sample has failed elsewhere. |