pygeometry Documentation

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pygeometry is a package to create, load, write and visualise constructive solid geometry.

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LICENCE & DISCLAIMER

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TWO

AUTHORSHIP

The following people have contributed to pygeometry:

- Stewart Boogert
- Andrey Abramov
- Alistair Butcher
- Stuart Walker
- Laurie Nevay

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THREE

INSTALLATION

3.1 Requirements

- pygeometry is developed exclusively for Python 2.7.

3.2 Installation

To install pygeometry, simply run `make install` from the root pygeometry directory.:

```
cd /my/path/to/repositories/
git clone http://bitbucket.org/jairhul/pygeometry
cd pygeometry
make install
```

Alternatively, run `make develop` from the same directory to ensure that any local changes are picked up.

CHAPTER

FOUR

MODULE CONTENTS

This documentation is automatically generated by scanning all the source code. Parts may be incomplete.

4.1 pygeometry.gdml module

4.2 pygeometry.geant4 module

4.3 pygeometry.pycsg module

4.4 pygeometry.transformation module

pygeometry.transformation.**deg2rad**(*deg*)

pygeometry.transformation.**matrix2tbxyz**(*matrix*)
Convert rotation matrix to Tait-Bryan angles.

Order of rotation is x -> y -> z.

matrix : "Orientation" matrix in the form of a numpy matrix instance or appropriately formed list.

Returns: [x, y, z] Tait-Bryan angles in a list.

pygeometry.transformation.**rad2deg**(*rad*)

pygeometry.transformation.**relative_rotation**(*rot1*, *rot2*)
Get the relative Tait-Bryan rotation of the second with respect to the first.

pygeometry.transformation.**tbxyz**(*rv*)
Tait-Bryan x-y-z rotation to axis-angle representation Algorithm from http://www.sedris.org/wg8home/Documents/WG80485.pdf

A positive value corresponds to a clockwise rotation looking AT/against the direction of the axis. This is "left hand rule", albeit in a right handed coordinate system.

rv = list of three angles corresponding to [x, y, z] in radians.

pygeometry.transformation.**tbxyz2matrix**(*angles*)
Convert Tait Bryan angles to a single passive rotation matrix. Rotation order = x -> y -> z.

angles : list of angles: x, y, z

Returns: rotation matrix

4.5 pygeometry.vtk

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