Oaktree Manual

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Input

Oaktree input language extends Python. Subroutines and objects related to input processing are listed below.

4.1 SIMULATION

SIMULATION object stores data specific to one distinct analysis.

obj = SIMULATION (outpath, duration, step, grid, cutoff, extents)

- **obj** - SIMULATION object
- **outpath** - output directory path
- **duration** - simulation duration
- **step** - time step
- **grid** - regular size of octree grid
- **cutoff** - cutoff length below which geometrical details are not resolved
- **extents** - tuple $(x_{min}, y_{min}, z_{min}, x_{max}, y_{max}, z_{max})$ of domain extents beyond which bodies are deleted

4.2 SPHERE

A sphere shape.

obj = SPHERE (center, r, vcolor, scolor)

- **obj** - SHAPE object
- **center** - tuple (x, y, z) defining the center
- **r** - radius
- **vcolor** - integer volume color
- **scolor** - integer surface color

4.3 CYLINDER

A cylinder shape.

obj = CYLINDER (base, top, r, vcolor, scolor)

- **obj** - SHAPE object
- **base** - tuple (x, y, z) defining the base center
- **top** - tuple (x, y, z) defining the top center
- **r** - radius
- **vcolor** - integer volume color
- **scolor** - integer tuple $(s_{base}, s_{side}, s_{top})$of surface colors

4.4 CUBE

A cube shape.

obj = CUBE (corner, u, v, w, vcolor, scolor)

- **obj** - SHAPE object
- **corner** - tuple (x, y, z) defining the minimum coordinate corner
- **u** - length along x
- **v** - length along y
- **w** - length along z
- **vcolor** - integer volume color
- **scolor** - integer tuple $(s_{xmin}, s_{ymax}, s_{zmin}, s_{xmax}, s_{ymax}, s_{zmax})$ of surface colors

4.5 UNION

Set theoretic union of two shapes.

obj = UNION (shape1, shape2)

- **obj** - SHAPE object
- **shape1** - first input SHAPE object
- **shape2** - second input SHAPE object

4.6 INTERSECTION

Set theoretic intersection of two shapes.

obj = INTERSECTION (shape1, shape2)

- **obj** - SHAPE object
- **shape1** - first input SHAPE object
- **shape2** - second input SHAPE object

4.7 DIFFERENCE

Set theoretic difference of two shapes.

obj = DIFFERENCE (shape1, shape2)

- **obj** - SHAPE object
- **shape1** - first input SHAPE object
- **shape2** - second input SHAPE object

4.8 MOVE

Move shape linearly.

MOVE (shape, vector)

- **shape** - input SHAPE object
- **vector** - tuple (u, v, w) defining the translation

4.9 ROTATE

Rotate shape about an axis.

MOVE (shape, point, vector, angle)

- **shape** - input SHAPE object
- **point** - tuple (x, y, z) defining axis point
- **vector** - tuple (u, v, w) defining axis direction
- **angle** - oriented angle in degrees

4.10 SOLID

A solid is created in a simulation.

obj = SOLID (simu, shape, label)

- **obj** - SOLID object
- **simu** - simulation in which the solid is created
- **shape** - solid shape
- **label** - solid label

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