COMSOL MULTIPHYSICS

Summary of the work done/things learnt in the ray optics module

8th JUNE 2023 – 23rd JUNE 2023

AMARNATH (MS22070)

BRIEF SUMMARY

-Retroreflector (corner retroreflector made in blank project)

-Creating 2D Geometry

-Creating 3D Geometry, use of Extrude, Revolve and Sweep

-Gravitational lensing modeling using variable refractive index in surroundings of sun. (followed tutorial given online)

-Simple Michelson interferometer model from blank project

Creating 3D geometry.mph - COMSOL Multiphysics

File Home Definitions Geometry Materials Physics Mesh Study Results Developer

Application Builder | Model Manager | Component 1 | Add Component | Parameters | Variables | Functions | Parameter Case | Import | LiveLink | Add Material | Select Physics Interface | Add Physics | Build Mesh | Mesh 1 | Compute | Select Study | Add Study | Select Plot Group | Add Plot Group | Add Predefined Plot | Windows | Reset Desktop

Workspace | Model | Definitions | Geometry | Materials | Physics | Mesh | Study | Results | Layout

Model Builder

- Creating 3D geometry.mph (root)
  - Global Definitions
    - Parameters 1
    - Materials
  - Component 1 (comp1)
    - Definitions
      - Boundary System 1 (sys1)
      - View 1
    - Geometry 1
      - Cylinder 1 (cyl1)
      - Move 1 (mov1)
      - Block 1 (blk1)
      - Union 1 (uni1)
      - Array 1 (arr1)
      - Block 2 (blk2)
      - Difference 1 (dif1)
      - Cylinder 2 (cyl2)
      - Move 2 (mov2)
      - Block 3 (blk3)
      - Union 2 (uni2)
      - Move 3 (mov3)
      - Array 2 (arr2)
      - Mirror 1 (mir1)
      - Difference 2 (dif2)
      - Form Union (fin)
      - Ignore Edges 1 (ige1)
    - Materials
    - Mesh 1
  - Results
    - Datasets
    - Derived Values
    - Tables
    - Export
    - Reports

Settings

Geometry

Build All

Label: Geometry 1

Units

☐ Scale values when changing units

Length unit:
m

Angular unit:
Degrees

Advanced

Geometry representation:
CAD kernel

☐ Design Module Boolean operations

Default repair tolerance:
Automatic

☑ Build new operations automatically
☑ Build automatically when leaving geometry

Graphics

0.1
m
0
0
0.1
0.2
m
0.3
z
y
x

Messages | Progress | Log | Table

COMSOL Multiphysics 6.1.0.282
[Jun 20, 2023, 4:25 PM] Opened file: C:\kumar\comsol\retroreflector.mph
[Jun 20, 2023, 4:27 PM] Opened file: C:\kumar\comsol\Gravitational lensing modeling.mph
[Jun 20, 2023, 4:28 PM] Opened file: C:\kumar\comsol\Creating 3D geometry.mph

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