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Department :Mechanical Power Engineering
Class : Third
Subject : Computer Applications3 / Code : UOMU0000033
Lecturer: M.Sc Abrar Abdulkareem
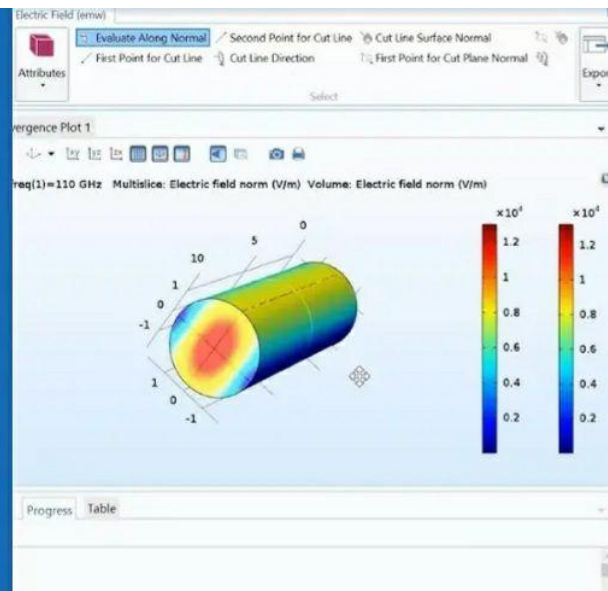**2nd term – Lecture No. 5& Lecture Name Fifth Lecture**

Geometry types and their applications:

There are so many types of geometry that can be established in COMSOL Multiphysics in all types of dimensions starting from 1-D and ending by 3-D.

Choosing the geometry depends on purpose that it is being designed for.

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The following simulation is for an inner heat flux boundary condition which is considered as a common type of heat transfer that usually happens in the electric cables because of the heat resulting from the transmitted current. The model is demonstrated in the figure below:

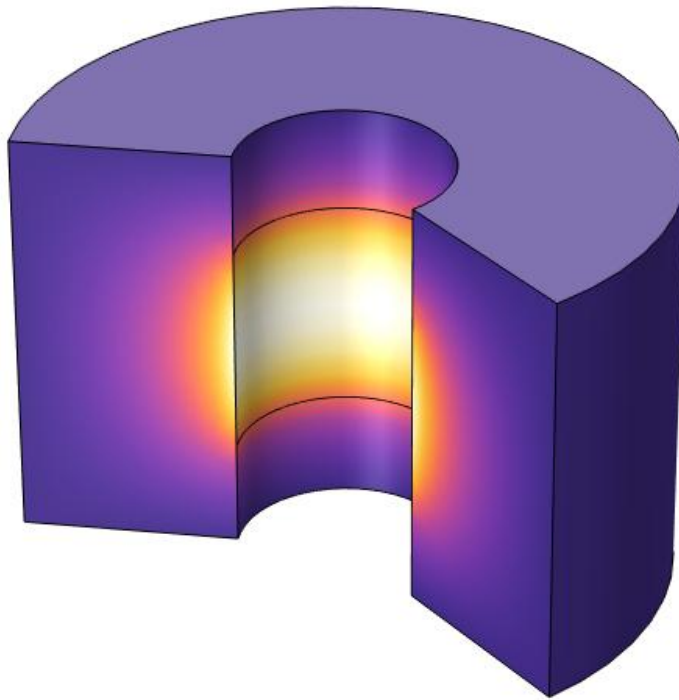**Al-Mustaqbal University / College of Engineering & Technology**
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Where it shows the high heat transfer rate coming from inside the cable.

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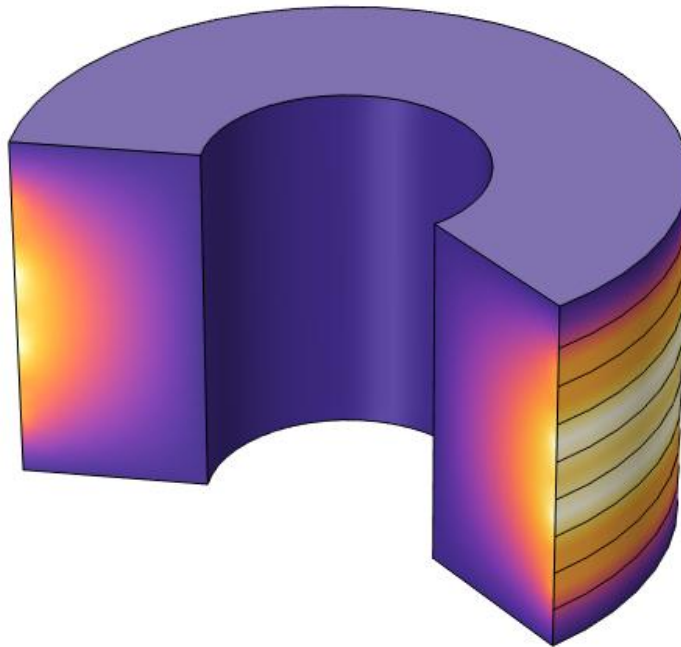**Department :Mechanical Power Engineering**
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Another model can be illustrated here which contains outer heat flux boundary condition on the outer surface of the cylinder. This model represents a pipe that is being subjected to external heat sorces as shown below:

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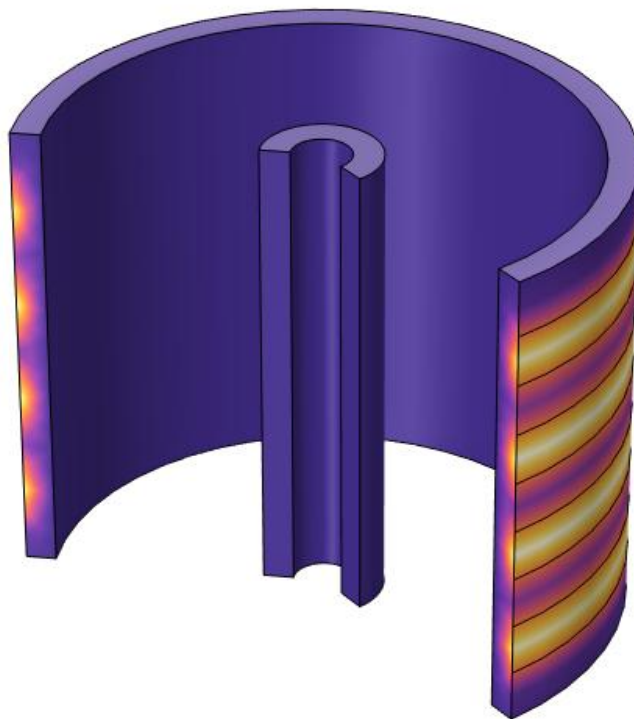**Subject : Computer Applications3 / Code : UOMU0000033**
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This can be a representation of a water transmitting pipe subjected to external heat from the environment.

A dobule pipe model is a common type that is used to give extra protection to the material inside the pipe or to create some kinde of annular free convective heat transfer flow as demonstrated in the figure below:

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It is also clarified that the external pipe is subjected to a heat flux coming from external heat sourced. Eventually the heat flux is considered the boundary condition of the problem here.