**LAB 5**

**CT SCAN (Computerized Tomography)**

**Computed Tomography**

Computed Tomography (CT) is a powerful nondestructive evaluation (NDE) technique for producing 2-D and 3-D cross-sectional images of an object from flat X-ray images. Characteristics of the internal structure of an object such as dimensions, shape, internal defects, and density are readily available from CT images. Shown below is a schematic of a CT system.



A computed tomography (CT or CAT) scan allows doctors to see inside your body. It uses a combination of X-rays and a computer to create pictures of your organs, bones, and other tissues. It shows more detail than a regular X-ray.

You can get a [CT scan](https://www.webmd.com/a-to-z-guides/computed-tomography-ct-scan-of-the-body) on any part of your body. The procedure doesn't take very long, and it's painless.

**How Do CT Scans Work?**

They use a narrow X-ray beam that circles around one part of your body. This provides a series of images from many different angles. A computer uses this information to create a cross-sectional picture. Like one piece in a loaf of bread, this two-dimensional (2D) scan shows a “slice” of the inside of your body. This process is repeated to produce a number of slices. The computer stacks these scans one on top of the other to create a three-dimensional (3D) image. This can give your doctor a better view of your organs, bones, or [blood](https://www.webmd.com/heart/anatomy-picture-of-blood) vessels. For example, a surgeon may use this type of scan to look at all sides of a tumor to prepare for an operation.

In the image below left is a set of cast aluminum tensile specimens. A radiographic image of several of these specimens is shown below left.





A number of slices through the object can be reconstructed to provide a 3-D view of internal and external structural details. As shown above, the 3-D image can then be manipulated and sliced in various ways to provide thorough understanding of the structure