

Semester Report

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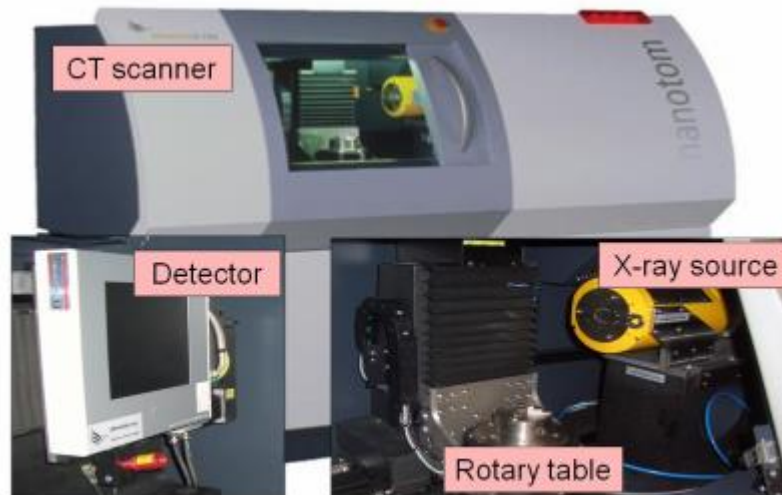
Introduction

What is Computed tomography.

Computed tomography (CT) is an imaging procedure that uses special x-ray equipment to create detailed pictures, or scans, of areas inside the body or object.

Principle of CT

A CT system consists of an X-ray source, a rotary table, an X-ray detector and a data processing unit for computation, visualization and data analysis of measurement results



Influence factors

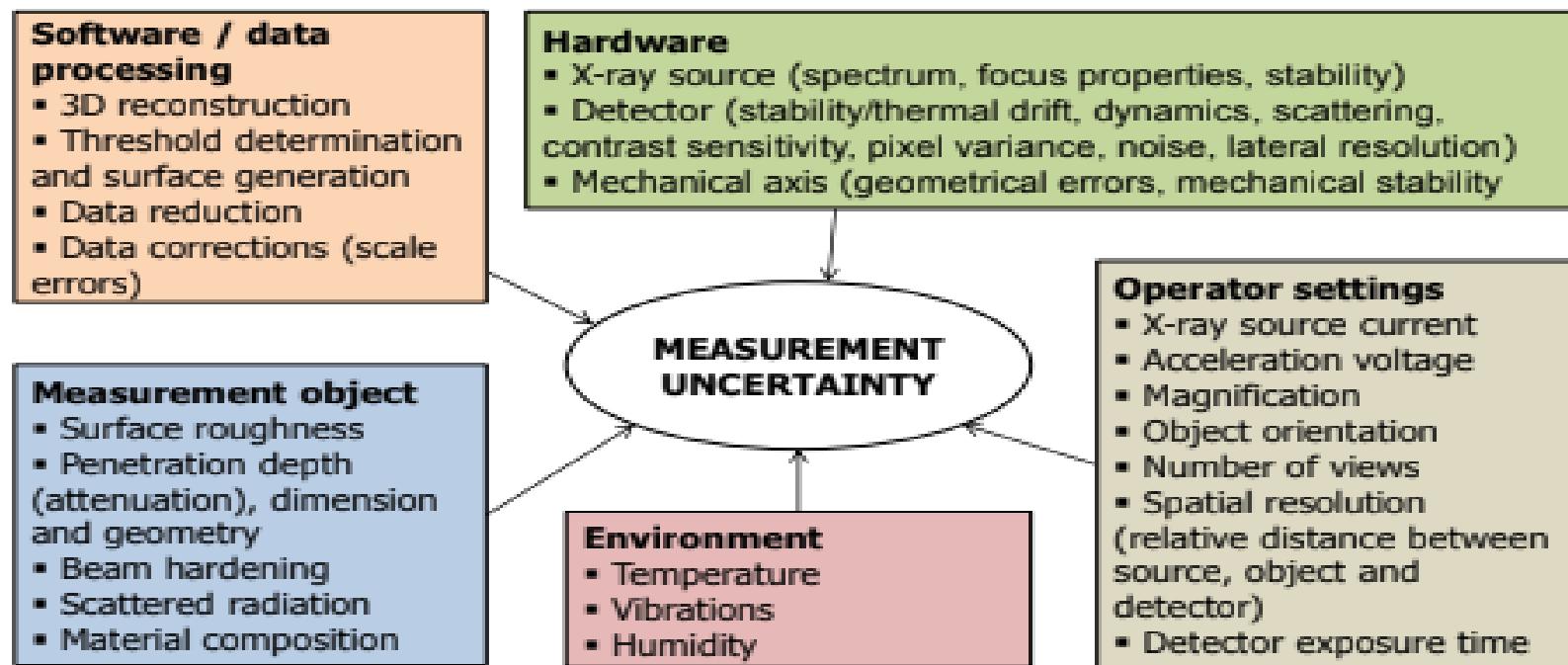
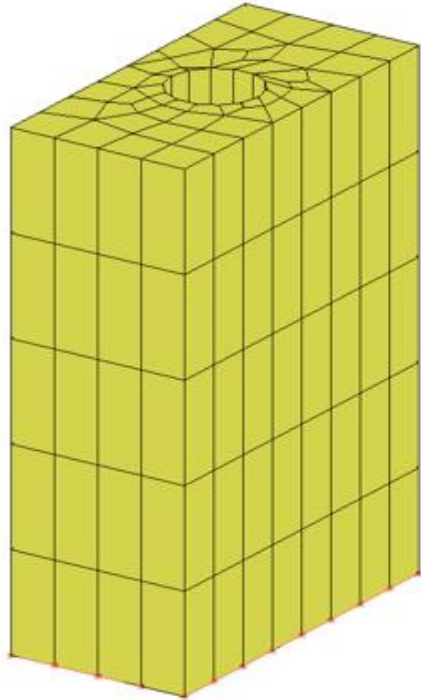


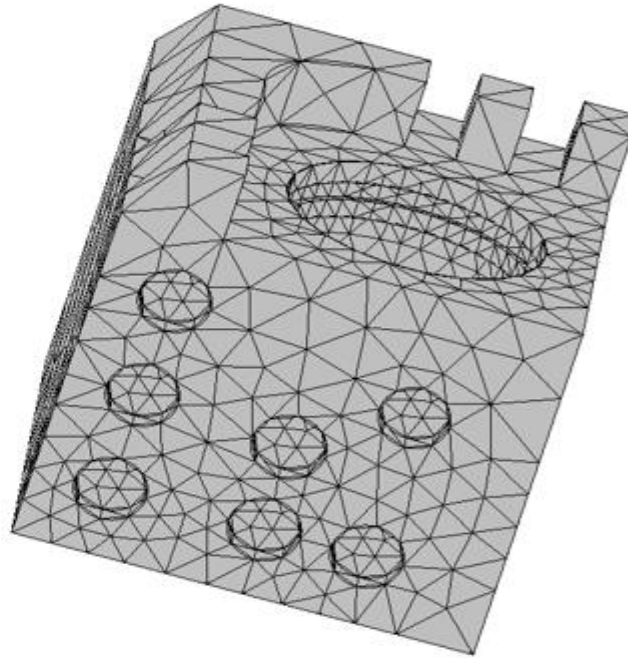
Figure 4.1: *Influence factors in CT.*

Previous results

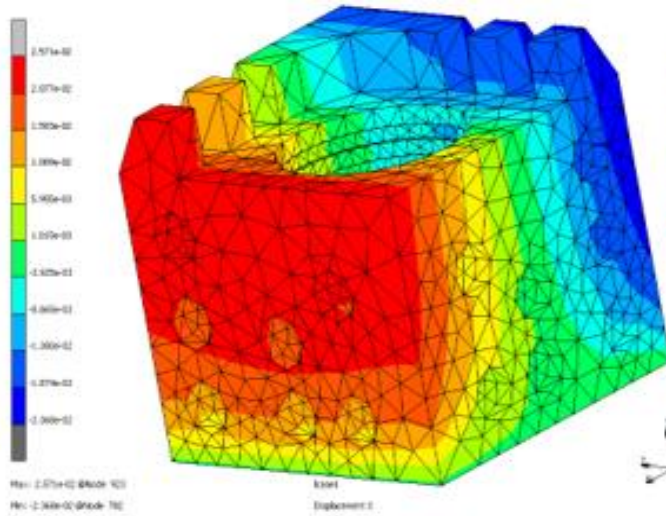
- ▶ Simulation the effect of temperature on measurement by CTs using Marc Mentat software and finite element methods



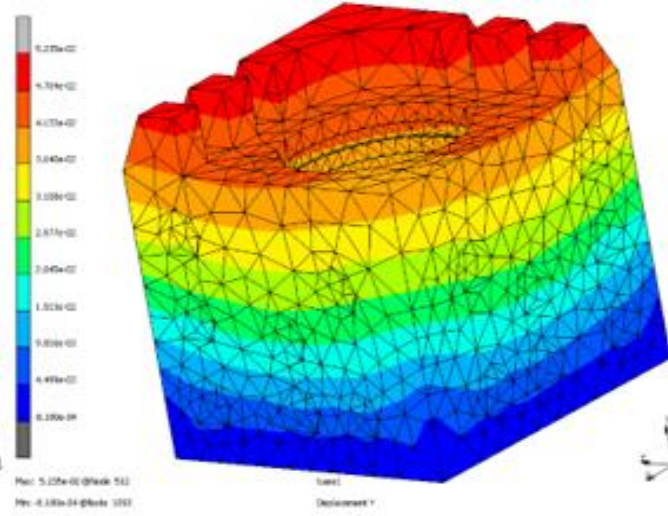
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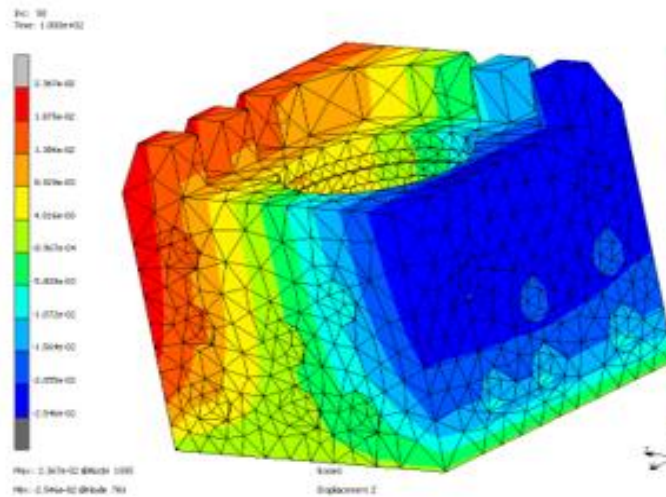
b



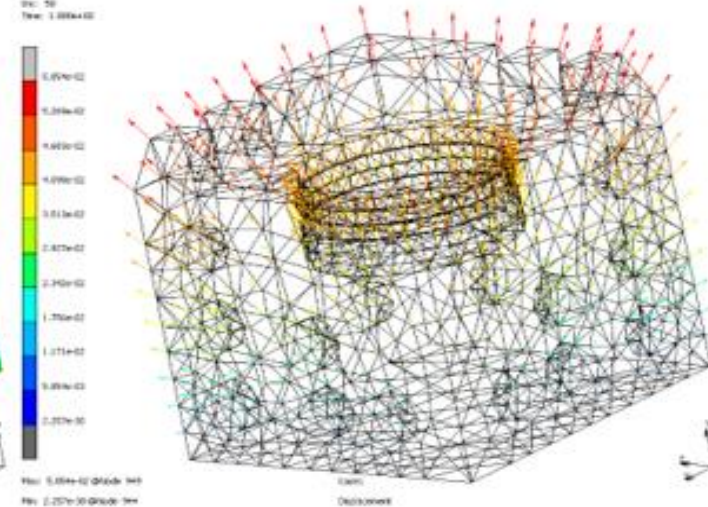
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c

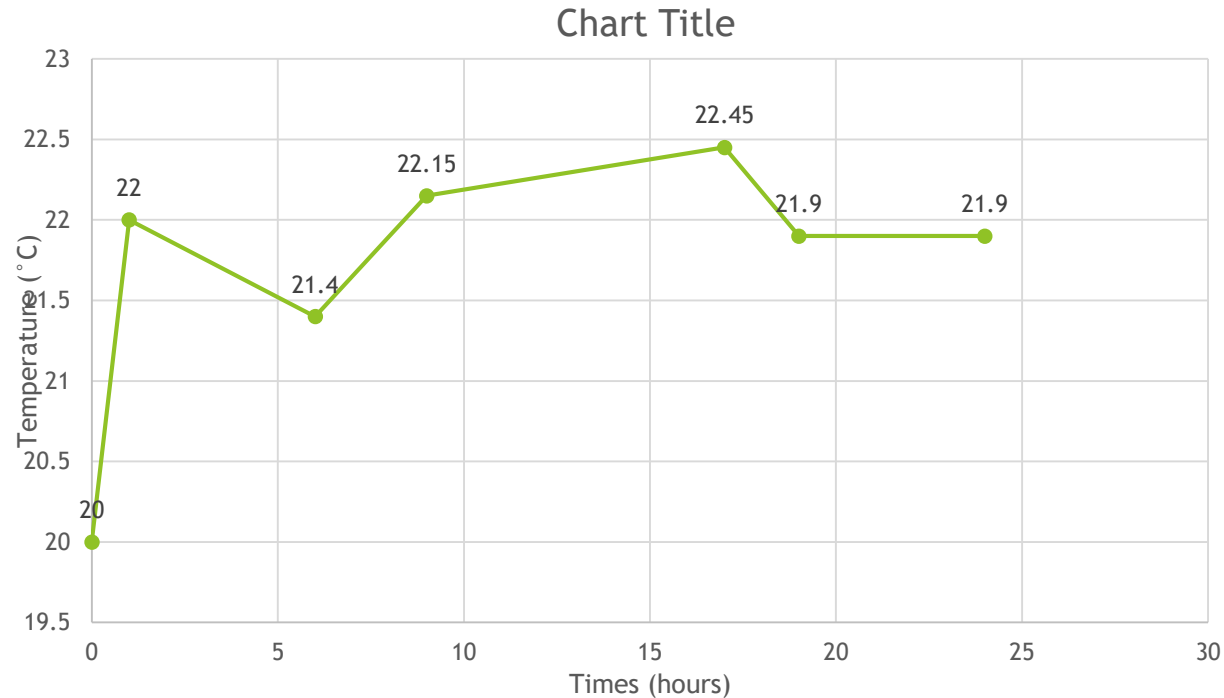


d

Result of actual semester

1. Improvement in simulation

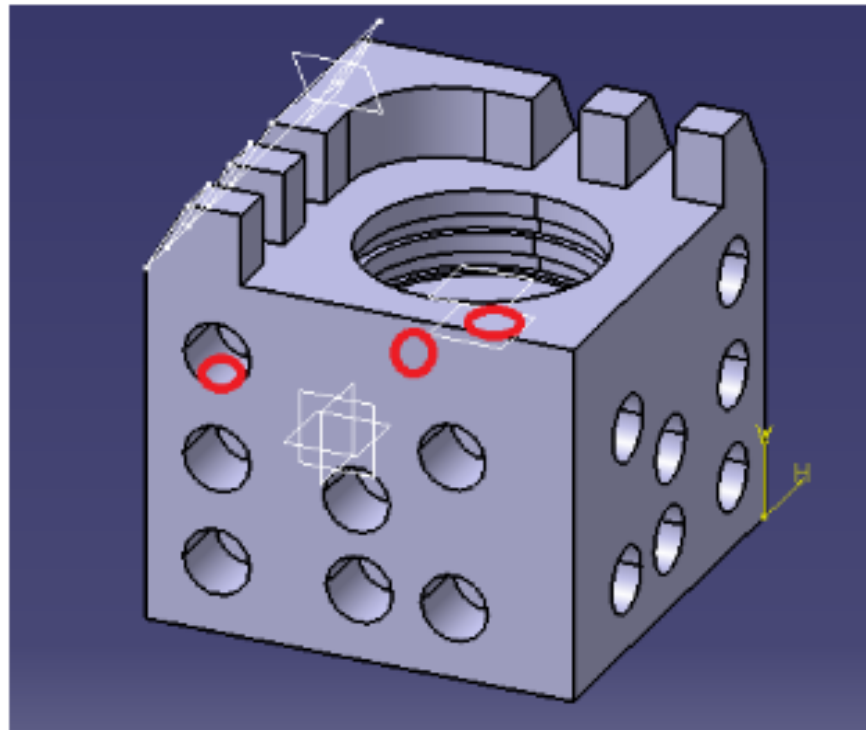
- ▶ Change the graph of temperature change which is more similar to the real process of CT measurement
- ▶ The article about the simulation is in improving phase



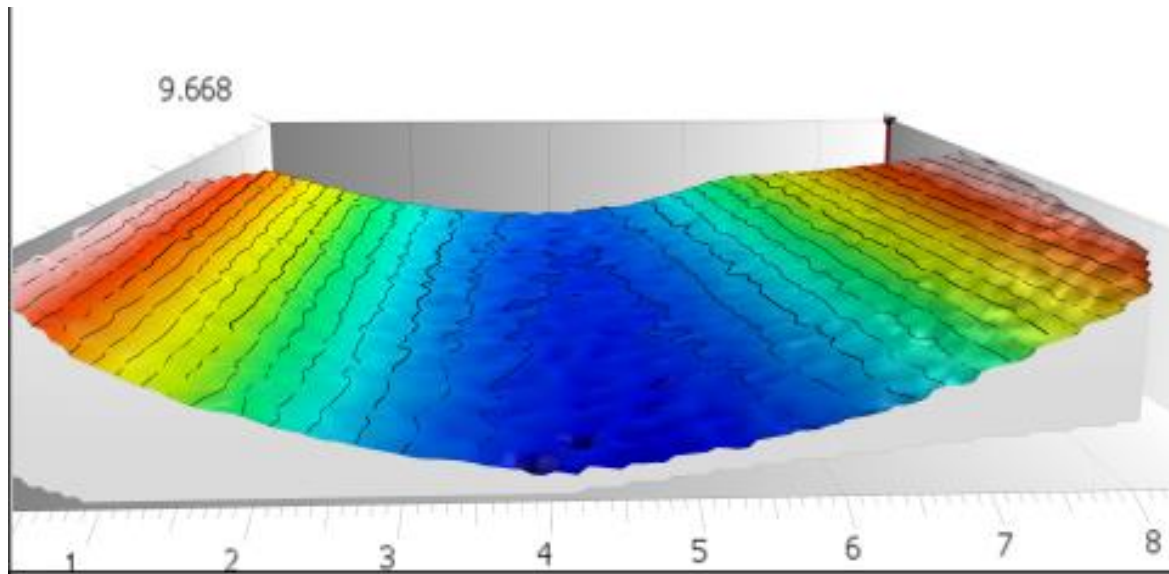
Result of actual semester

2. Surface measurement using CT

- ▶ Creating planning for surface measurement in CT
- Collecting topography of targeting positions in specimen using surface measurement instruments, which will be used as master



- Collecting STL file (point clouds) of surfaces in CT files (freeform surface)
- Aligning STL files with master files to assure investigating same area of surface
- Using third software to create topography based on STL files from CTs (Mountain Map, SurfSurface,...)



Plan for the next semester

1. Complete the paper based on the result from simulation
2. Complete the surface measurement using CT process

Thank you for listening