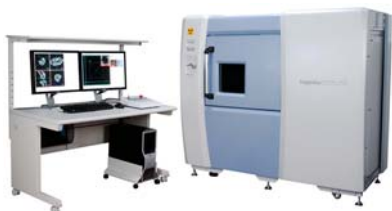


# Observation of Organic Specimens with an X-Ray CT System and Creation of 3D Printed Molds

Shimadzu Corporation

## Micro Focus X-Ray CT System

The inspeXio SMX-100CT system has a micro focus X-ray generator (max.100kV) and high sensitive image intensifier, making this system useful for the observation of soft materials (resin, bone etc.). The internal structures of small insects such as internal muscles and nerves can be observed nondestructively by CT imaging.

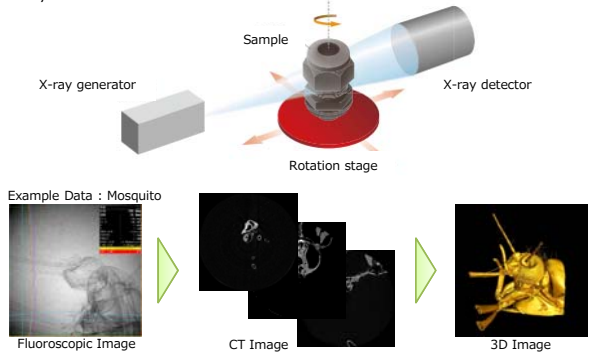


Micro Focus X-Ray CT System  
inspeXio SMX-100CT

### ■ Main Specifications

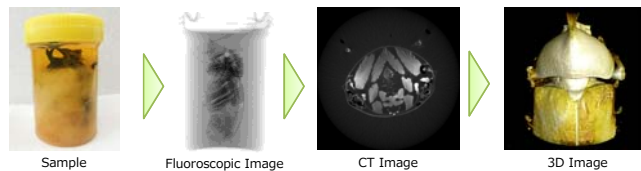
Chart Resolution	5um (JIMA chart, fluoroscopic image)
Max. Sample size	Φ180mmxH250mm
Max. Sample Weight	4kg
X-Ray Generator	100kV-200uA (Max.20W)
CT Scan Area (FOV)	MAXΦ90mm (2DCT:Φ115mm)

### ■ System Structure

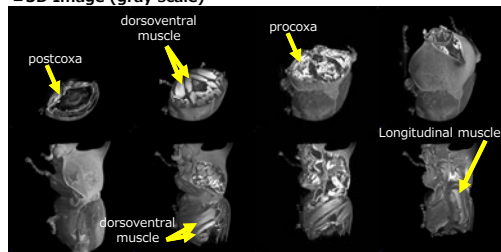


## Observation of a Beetle

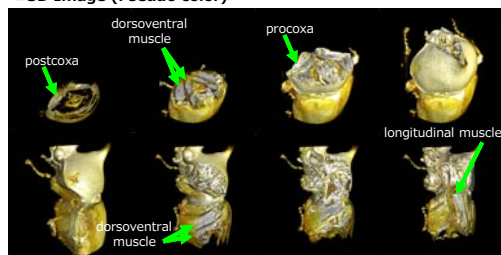
Sample offered by Dr. Shuhei Nomura, National Museum of Nature and Science



### ■ 3D Image (gray scale)



### ■ 3D Image (Pseudo color)

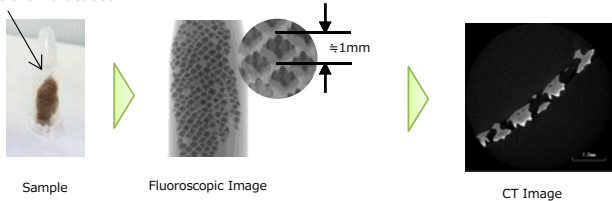


Shuhei Nomura, Masami Edahiro ; "3D data sampling on internal structures of two beetle species by micro X-ray CT", SAYABANE N.S. No.18 pp41-46(2015)

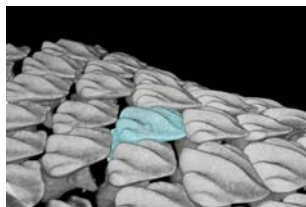
## Observation of a Shark Skin

Sample offered by Dr. Gento Shinohara, National Museum of Nature and Science

ethanol 70% solution



### 3D Image

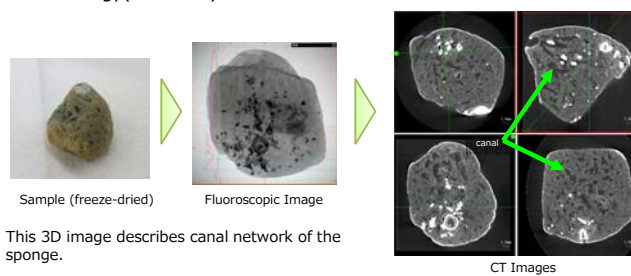


The surface rendering can be converted into a format called STL (Standard Triangulated Language).  
By using this data, we can create a molding with a 3D printer.



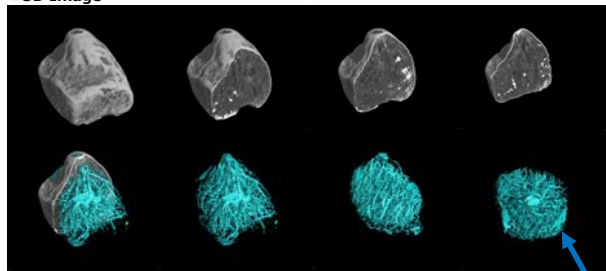
## Observation of a Sponge

Sample offered by Dr. Remi Tsubaki, Japan Agency for Marine-Earth Science and Technology(JAMSTEC)



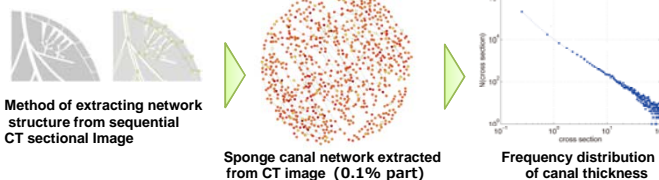
This 3D image describes canal network of the sponge.

### ■ 3D Image



Analysis of canal network using 3D image by Dr. Remi Tsubaki.

blue : canal



Method of extracting network structure from sequential CT sectional image

Sponge canal network extracted from CT image (0.1% part)

Frequency distribution of canal thickness