

## FOREWORD

Etymologically, *tomography* means imaging by sections or sectioning. X-ray Computed Tomography (CT) enables a three dimensional reconstruction of an object from a large series of X-ray images taken around a single axis of rotation. High-resolution X-ray CT differs from conventional medical CT scanning in its ability to resolve details as small as a few microns in size, even when imaging objects are made of high density materials.

Originally developed for use in healthcare, X-ray CT is used more and more in the field of nondestructive material testing. Computed tomography is useful for studying a wide range of materials, *e.g.*, rock, bone, ceramic, metal and soft tissue. Recently, the study of Geomaterials (including granulates, soils, rocks and concrete) has become one of the more active and challenging fields for the application of high-resolution X-ray CT.

Following the first successful workshop held in Kumamoto (Japan) in November 2003 (GeoX 2003), a second international workshop (GeoX 2006) took place in Aussois (France) on October 4-7, 2006. The purpose of GeoX 2006 was to bring together scientists from academia and industry to address the application of X-ray CT to Geomaterials and review recent developments and challenges in the field.

This book collects a total of 48 contributions (including 5 keynote papers), which were presented at GeoX 2006. The contributions span a wide range of topics, from fundamental characterization of material behavior to applications in geotechnical and geoenvironmental engineering. Recent advances of X-ray technology, hardware and software, are also covered. The book will be rewarding for anyone interested in the frontier application of X-ray CT to Geomaterials from both fundamental and applied perspectives.

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