

Natural Ceramics vs. Artificial Ceramics

– Let's explore their structural differences! –

Department of Materials Science and Engineering

Staffs: Prof. Hitoshi Takamura

○ Assist. Prof. Itaru Oikawa (TEL: 022-795-3939, Email: itaru@material.tohoku.ac.jp)

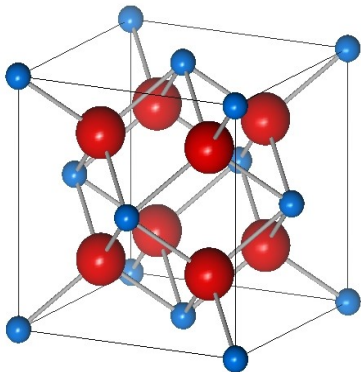
Assist. Prof. Akihiro Ishii

Abstract:

Functional ceramics are used in various fields such as fuel cells and are generally synthesized at high temperature ($> 1000^{\circ}\text{C}$) under ambient pressure. Meanwhile, precious stones and mineral ores are naturally produced in the inside of the earth under high temperature and high pressure. In this course, precious stones and mineral ores (natural ceramics) are structurally explored by means of X-ray diffraction and nuclear magnetic resonance spectroscopy, and structural differences between natural ceramics and artificially synthesized ceramics will be compared. Let's explore natural ceramics produced by a global scale energy at structural point of view!

Functional ceramics

Artificially synthesized



Structurally
difference ?

Investigated by X-ray
diffraction and NMR
spectroscopy !

Precious stones and mineral ores

Produced by high temperature
and high pressure in the inside
of the earth.

