

# Fabrication of Transparent Conductive Materials by Dispersion of Chemically Oxidized Long Carbon Nanotube

## Al<sub>2</sub>O<sub>3</sub> ceramic properties

- high strength
- high heat resistance
- good plasma resistance

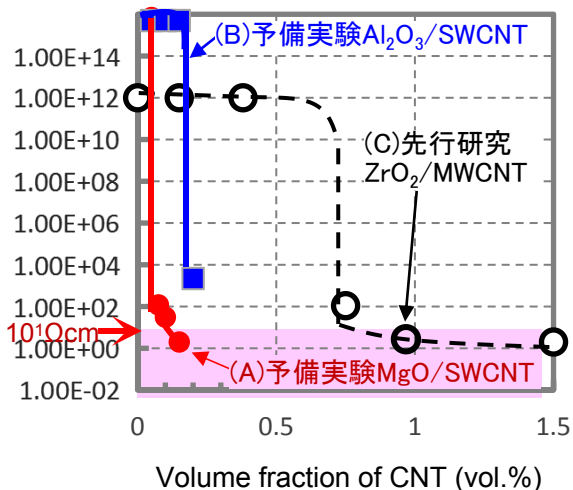


図1. 絶縁体セラミックスの低抵抗化に必要なCNT添加量: 予備実験(A)(B)、先行研究(C)

## Leading research

Kagawa Univ. succeeded in reducing the electrical resistivity of MgO to 10<sup>1</sup> Ωcm by adding just 0.1 vol% of Single-wall CNT with diameter of 3-5 nm and length of 100-600 μm and aspect ratio of 100000.

## Research in the future

- Fabrication of conductive ceramic sintering body. (It is expected that the resistance can be reduced with a much lower amount of SWCNT than 0.01 vol%.)
- Fabrication of transparent conductive ceramic films.

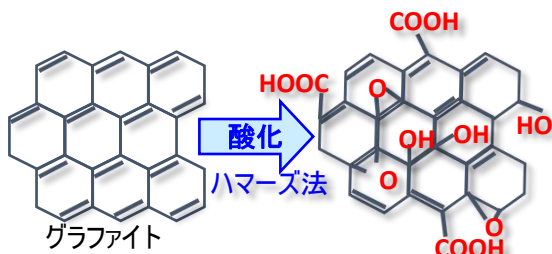


図2. グラファイトの酸化処理による親水基の導入



図3. 長尺SWCNTのアルコール中での分散状態

Strong agglomeration  
and large surface area

SDBS

Aggregate CNT from  
hydrophobic to hydrophilic

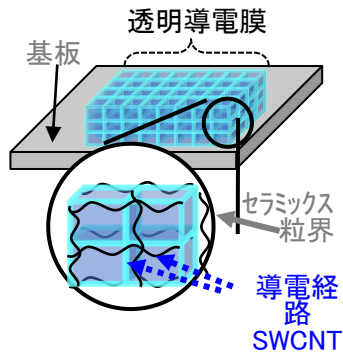


図4.薄膜中のSWCNT導電経路

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