

Laboratory analogy of crystalline Fe_2SiO_4 , $(\text{Fe}_x\text{Fe}_{1-x})_2\text{SiO}_4$ and SiC grain formation

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A new evaporation method by the use of carbon holy film have been used on the formation of crystalline Fayalite (Fe_2SiO_4), Olivine($\text{Mg}_x\text{Fe}_{1-x})_2\text{SiO}_4$ and SiC grains by the evaporation in inert gas of He or Ar. Solid crystalline grains less than 50 nm have been produced from gas phase. As reported in previous paper(T, Sato et al, Planetary and Space Science 54 (2006)612-616), Fe crystalline particle covered with SiO layer produced and Fe_2SiO_4 particle was produced by heating at 800°C . In the present paper, direct evaporation of mixture gas of (Fe, SiO), (Fe, Mg, SiO) and (Si, C) can be formed the crystalline particles from gas phase.

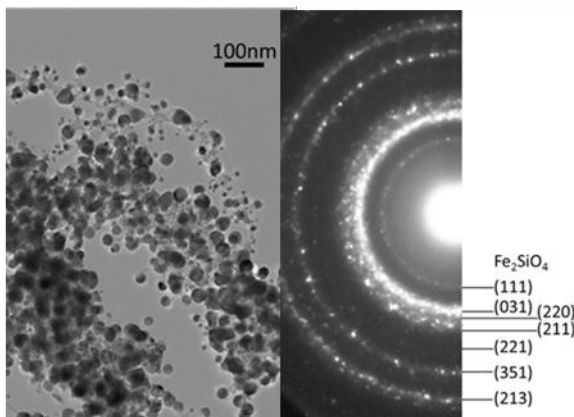


Fig1. Fe_2SiO_4

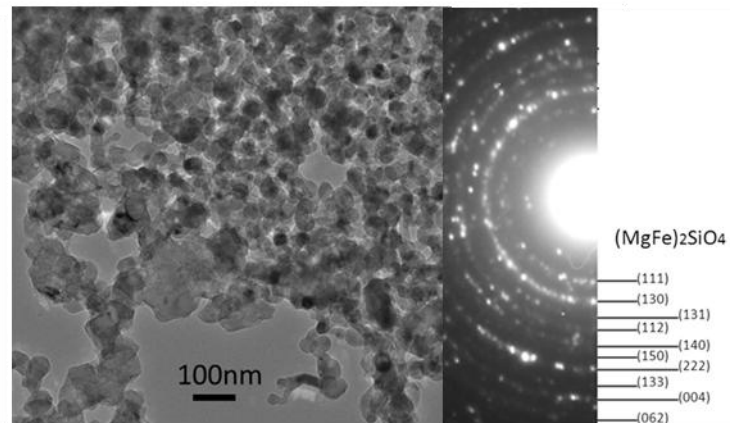


Fig2. $(\text{Mg,Fe})_2\text{SiO}_4$

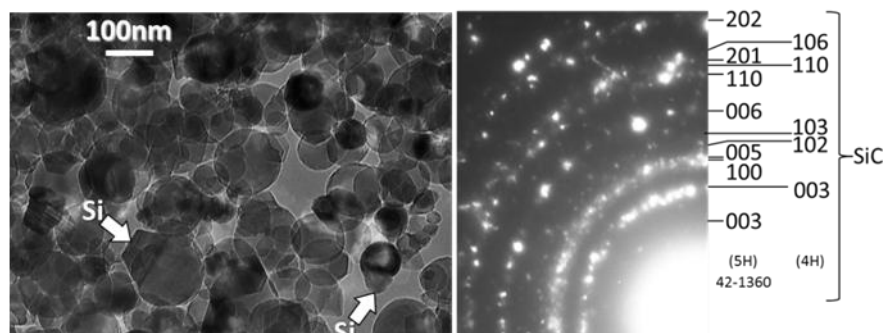


Fig3. SiC