

## Growth of MgB<sub>2</sub> Nanostructures by HPCVD

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We have synthesized MgB<sub>2</sub> flowers and MgB<sub>2</sub> nanowires by using hybrid physical-chemical vapor deposition (HPCVD) technique. Mg pellet and B<sub>2</sub>H<sub>6</sub> gas were used as source substances. We used a special susceptor with a susceptor cap in order to obtain a high magnesium vapor pressure around the substrate. We could determine the stoichiometry of MgB<sub>2</sub> flowers and MgB<sub>2</sub> nanowires by using electron probe microanalyzer (EPMA). The superconductivity of the MgB<sub>2</sub> flowers was confirmed by using the magnetic property measurements. The MgB<sub>2</sub> nanowires were observed to be 20 ~ 70 nm in diameter and 4 ~ 6 μm in length. A focused ion beam (FIB) was used to fabricate a nano-bridge of MgB<sub>2</sub> nanowire. The superconductivity of the MgB<sub>2</sub> nanowire was investigated by four-probe measurement.

Keywords: MgB<sub>2</sub>, Nanostructure, HPCVD