

Theme: Semiconductor Material

- Sub Theme: Methodologies for high quality SiC wafer

Making large SiC wafer with extremely low defect level is essential for the power electronic devices. For this, large SiC wafers with high quality are required to reduce the chip price and increase the device reliability, but the larger the wafer size, the more difficulty exists due to the increased defect density. Until now, for the SiC crystal growth, the sublimation method at a high temperature more than 2300 °C is the main fabrication method. At this high temperature, the temperature deviation inside the furnace increases, which results in high defect density. Therefore, a technology to reduce the temperature deviation near the crystal growth region is required for the high quality SiC wafer. In addition, due to the fact that the defects of the seed are transferred to the bulk during the crystal growth process, a nearly defect-free, large SiC seed is necessary.

We are looking for a breakthrough approach to solve the problem of high quality and large size SiC wafer, including almost defect-free SiC seed. We are highly interested in (but not limited to) the following list of topics.

- Effective method for manufacturing nearly defect-free 8-inch SiC seed
- Growth of the SiC wafer keeping extremely low defect level

※ *The topics are not limited to the above examples and the participants are encouraged to propose the original idea.*

※ *Funding: Up to USD 150,000 per year*