Nanocarbon technologies to achieve large-scale production

**Carbon nanotube**
**Carbon nanohorn aggregate**
**Carbon nanobrush**

- Semiconducting CNT ink for thin film transistor application was developed.
- Mass production technique of CNHs was developed and the product is on sale.
- Continuous preparation technology of carbon nanobrushes was developed.

### Carbon nanotube (CNT)
- Separation technology of metallic- and semi-conducting CNT for thin film transistor application
  - Electric-field-induced layer formation (ELF)
  - Semi-conducting CNT of above 99%
  - Non-ionic surfactant: stable operation of device

### Application technology
- Printed CNT transistor array with CNT ink

### Carbon nanohorn aggregate
- Uniform particle size
- Large surface area
- High dispersibility
- Incorporation of various materials
- Large surface area
- High purity
- Safety

### Application technology
- Production rate of 100g/h (1kg/day)
- Application for energy and medical field

### Carbon nanobrush (CNB)
- Diameter: 2-5 nm
- Length: 40-50 nm

### Application technology
- Establishment of production method of 10g/day
- Potential application for IoT and energy device

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