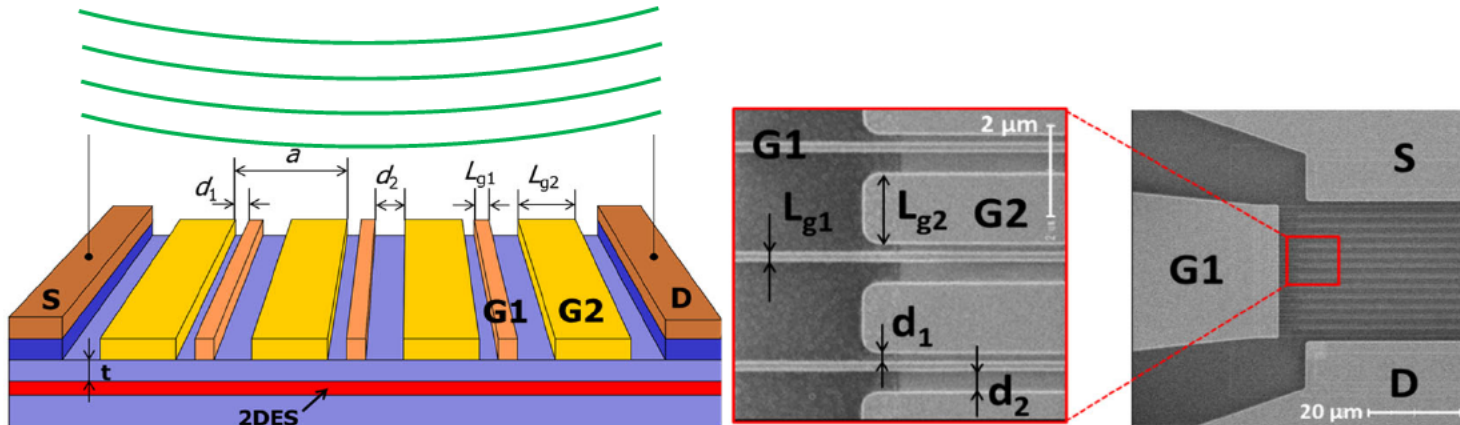


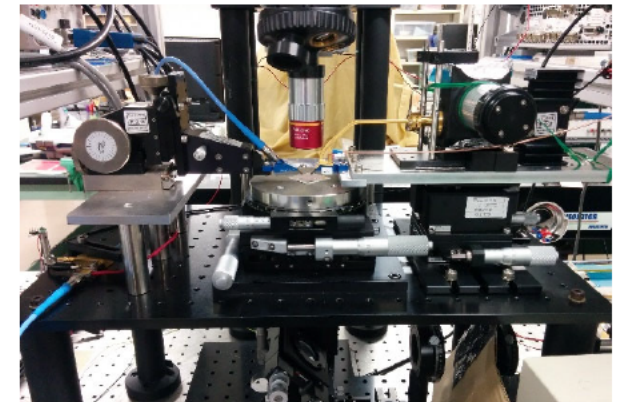
# Millimeter-Wave and Terahertz-Wave Devices for Beyond 5G

To handle an explosive increase in the wireless communication capacity accompanied with the advancement of cellular-phone services and practical realization of self-driving services, the use of high-frequency radio waves like millimeter waves or terahertz waves and bridging technologies between optical and wireless communications are needed. In this course, we learn about millimeter-wave and terahertz-wave semiconductor optoelectronic devices as key components to realize those technologies. We study their operation principles and measure their characteristics for a deeper understanding.

**Terahertz detector**



**Measurement of optical-to-MMW converter**



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