1. Wind Tunnel for Frost Growth (MEL2421)

- **Purpose**: This wind tunnel provides the desired air temperature, air velocity and humidity for the frost growing test. Through transparent test section, videos for the frosting growing on a cold plate can be obtained by a high-speed camera. Frost was also recorded by a capacitive sensor sitting beside the cold plate.

- **Imaging**: High speed camera Phantom VEO410L, Sigma 105mm f/2.8 EX DG Macro Lens

- **Data acquisition**: Nation Instruments cDAQ-9178

- **Feedthroughs**: T-type thermocouples, Setra Pressure Transducer 239, hot/cold liquid lines

- **NESLAB RTE-210 isothermal bath** provides the cold working fluid to the heat exchanger inside the wind tunnel, the lowest air temperature is ~11°C

- **PolyScience LS51M11A110C Chiller** enables a lowest inside fluid temperature of -20°C, used for cooling the cold plate

- **Experiments** were often performed with an ambient temperature of 16°C or lower, which required a pre-cooling time of 3–4 hours; the air humidity can reach to 70% with humidifier.