

PHYSICS TEACHERS VISIT STANDARDS AND CALIBRATION LABORATORY (SCL)



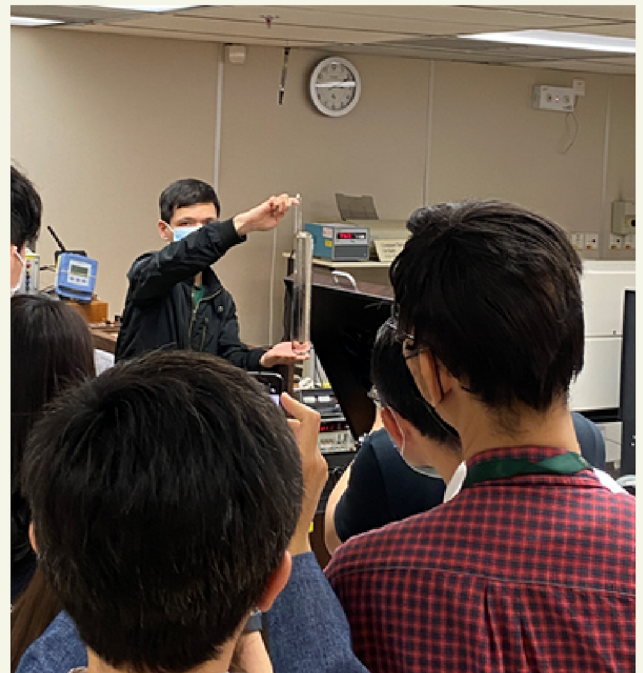
Set of Standard Weight

GUIDED TOUR IN SCL

On 17 and 24 March 2023, SCL invited two groups of Physics teachers to have a guided tour of laboratories, from Temperature, Photometry and Direct Current, to Low Frequency, Acoustics and Length. Our engineers introduced numerous calibration services and instruments during the tour. The teachers were invited to have interactive demonstrations to understand the principle behind them and how they are related to daily life. After the tour, the teachers can be a lighthouse to enlighten students in the calibration field.

STANDARDS AND CALIBRATION LABORATORY (SCL)

In modern society, calibration plays an essential role from industry to our daily life. The SCL is the custodian of Hong Kong's reference standards of physical measurements and provides comprehensive accredited calibration services to users of measurement standards and measuring instruments to ensure measurement accuracy and metrological traceability to the International System of Units (SI).



Water Triple Point Cell



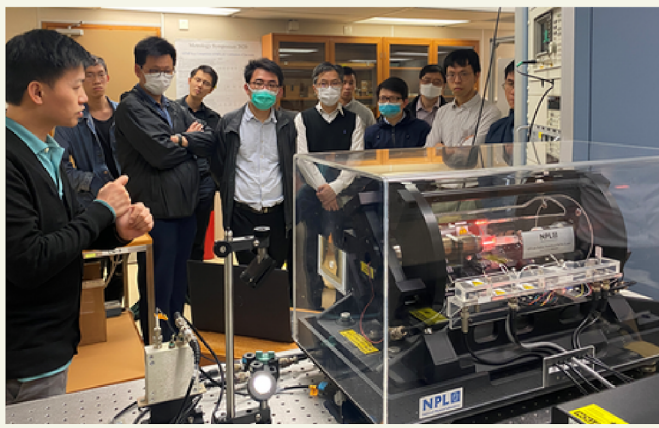
Explaining "Kelvin"

TEMPERATURE LAB

Demonstrating the Water Triple Point Cell and explaining how to realise of "Kelvin".

LENGTH LAB

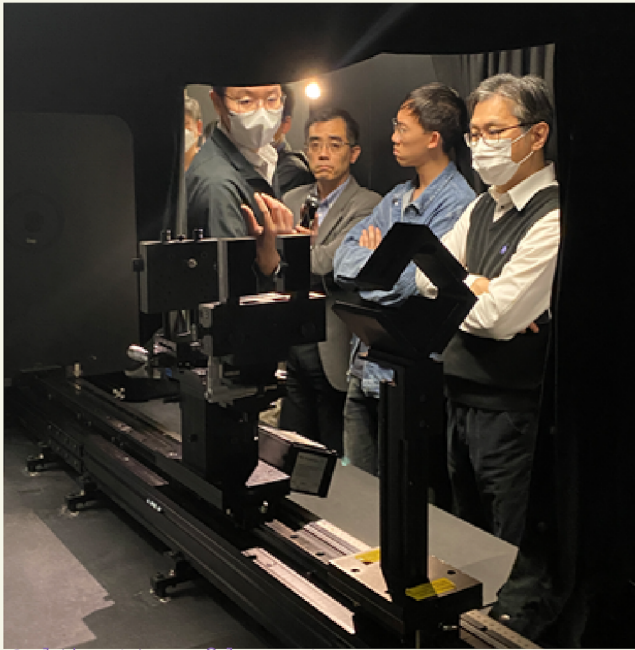
Showing the Iodine Stabilised Helium Neon Laser. It is used for the practical realisation of "Metre" which is the primary standard of Length.



Iodine Stabilised Helium Neon Laser

PHOTOMETRY AND RADIOMETRY LAB

To calibrate lux meter, an all-black room is essential. Since any reflective surface will affect the measurement results, the testing facilities must be all-black and with a non-reflective surface.



Calibration of lux meter



Principle of Photometry and Radiometry

PRINCIPLE OF PHOTOMETRY AND RADIOMETRY

Explaining the definition of illuminance, luminance, luminous intensity and luminous flux.

ADVANCED COMMUNICATION TECHNOLOGY LAB

Explaining the working principle of the Caesium Atomic Clock, the primary standard of time and frequency.

Demonstrating how to calibrate a stopwatch, and explaining the definition of time intervals.



Caesium Atomic Clock



Calibration of Stopwatch

RADIO FREQUENCY LAB

This is a Microcalorimeter, the reference measurement standard of Radio Frequency (RF) power.



Microcalorimeter - RF power

LOW FREQUENCY LAB

Showing how to calibrate the AC/DC transfer standard. The AC is commonly used in our daily life. The measurement of the AC is related to the reading of the electricity meter in every household.



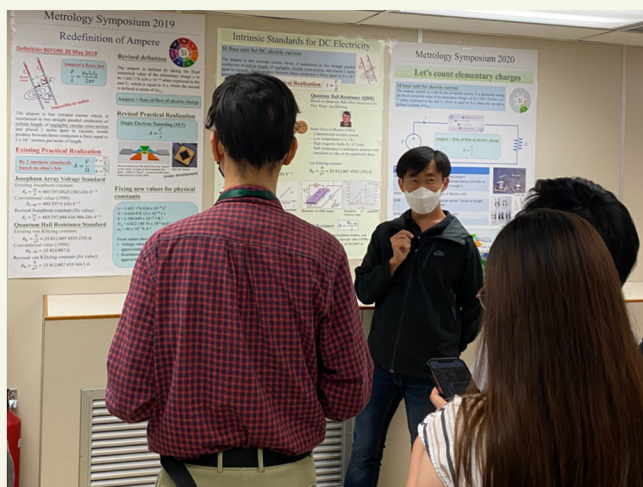
AC/DC Transfer

THREE-PHASE POWER

Explaining what is Three-phase Power, which is mainly used in the industry.



Three-phase Power



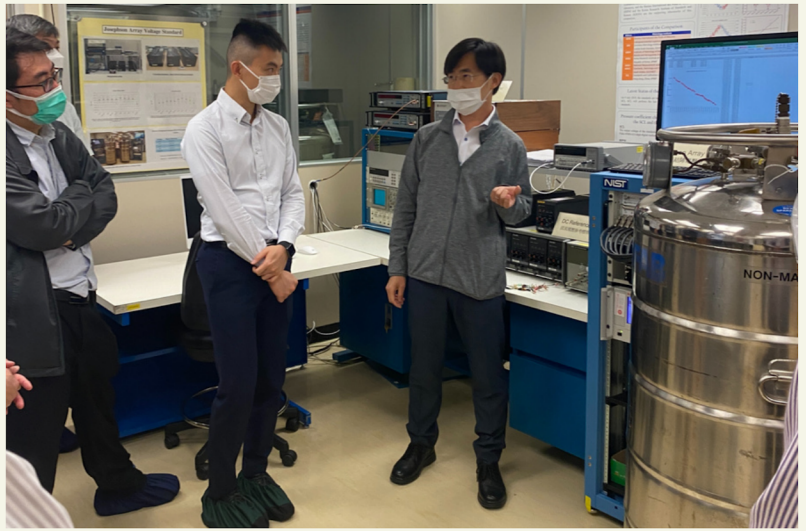
Definition of "Ampere"

DIRECT CURRENT LAB

Explaining the primary standards of electricity and the definition of SI base unit - "Ampere". The definition on the board helped teachers to understand more about it.

QUANTUM STANDARDS

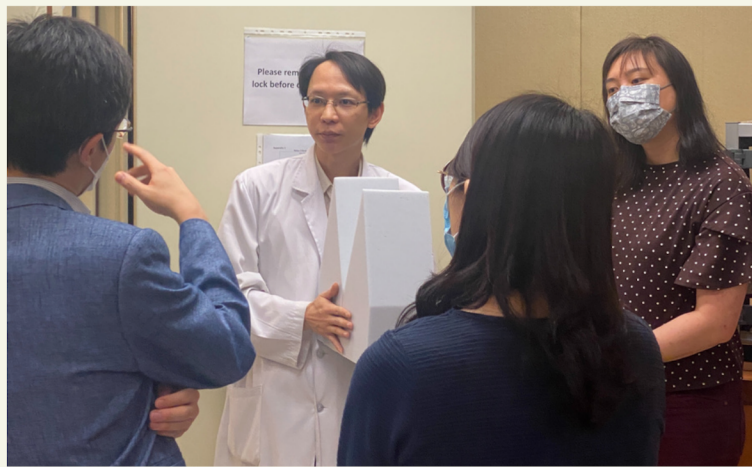
Demonstrating Programmable Josephson Voltage Standard (PJVS) and Quantum Hall Resistance (QHR), which are used to realise the physical definitions for voltage and resistance respectively.



Programmable Josephson Voltage Standard [PJVS]

ACOUSTICS LAB

Explaining the procedure for calibration of Head and Torso Simulator inside an Acoustics Anechoic Chamber. The anechoic chamber is designed to completely absorb the reflection of sound waves for precision acoustics measurements.



Demonstrating soundproofing materials

FREE FIELD MEASUREMENT

Explaining the definition of Free Field and demonstration of measurement setup in the chamber.



Inside of the Anechoic Chamber



Group photo of visit on 17 March 2023



Group photo of visit on 24 March 2023

POSITIVE FEEDBACK FROM TEACHERS!!

Teachers raised a lot of questions during the visit. They found that the calibration and standards are highly related to our daily life. Also, they found very useful teaching materials from SCL website, which brings new knowledge to the students. They are really impressed by the demonstration and undoubtedly recommend to teachers and students visiting SCL.

**Thank
you!**