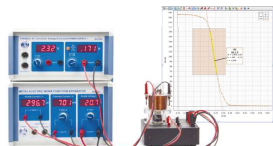
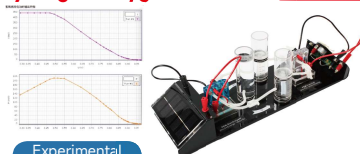


Ideal Vacuum Diode Comprehensive Experiment **BEX-8510****Experimental Contents**

1. Determination of work function of metal electron
2. Electron movement in radial electric field and axial magnetic field (Magnetron method measures electron charge-to-mass ratio)
3. Research on Fermi-Dirac distribution
4. The volt-ampere characteristics of an ideal vacuum diode

Scanning tunneling microscope **SEK-8501****Instrument Features**

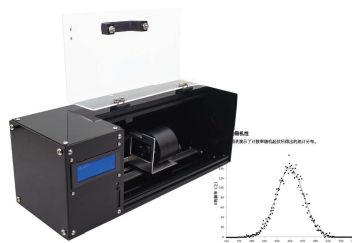
1. Specially-designed horizontal STM probe unit
2. Stabilized tri-axial piezoelectric scanner
3. Perfect software interfaces and functions
4. Simple and convenient instrument operation
5. High stability and better anti-disturbance / interference performances
6. High applicability in a wide range of applications

Hydrogen Oxygen Fuel Cell **BEM-5031****Experimental Contents**

1. Solar cell's V-I and P-V characteristic
2. Find the maximum power point (MPPT) of the solar panel through resistance matching
3. The electrolysis efficiency of electrolysis module
4. The reaction efficiency of fuel cell

Emulated radiation experiment **SEM-5704****Experimental Contents**

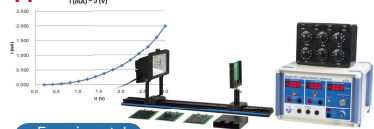
1. Background radiation.
2. Inverse Square law: the intensity of the radiation is linearly attenuated as a function of the square value of the distance between the source and the detector. Using the measured data, the inverse square characteristic of nuclear radiation is demonstrated in an appropriate chart analysis.
3. Isotope half-life: the radiation intensity of the source decays exponentially with time.
4. Exponential absorption of radiation intensity in matter: the radiation intensity decays exponentially with the distance traveled in the material
5. Randomness of nuclear radiation
6. Identification of α , β and γ : it is equipped with uncalibrated imitated radiation source. Students can try to distinguish the imitated radiation source from the emitted, particle or radiation source according to the counting rate and the measured routing data after using different absorbing material and thickness.

**Comprehensive Microwave Optics system** **BEX-8512****Experimental Contents**

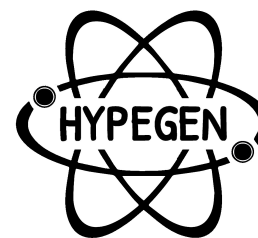
Learn about the reflection phenomenon, single slit diffraction phenomenon, interference characteristics, standing wave phenomenon, refraction phenomenon, and polarization phenomenon after horn polarization of microwaves. Understand the principles of Lloyd's mirror, Fabry Perot interference, Michelson interference, and Bragg diffraction.

Atomic force microscope **SEK-8502****Instrument Features**

1. Specially-designed horizontal AFM probe unit
2. Stabilized tri-axial piezoelectric scanner
3. Perfect software interfaces and functions
4. Simple and convenient instrument operation
5. High stability and better anti-disturbance / interference performances
6. High applicability in wide application fields

Solar Cell Characteristics Testing Apparatus **BEX-8603****Experimental Contents**

1. Measure the open circuit output voltage U_{oc} and short circuit current I_{sc} of solar cells under different light intensities
2. The voltage-current characteristic of the applied voltage of the solar cell under full dark conditions
3. Measurement experiment of solar cell output characteristics under light

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**iToF Light Speed Measurement Experiment** **BEX-8208****Experimental Contents**

1. Measuring the light speed in air by time-of-flight
2. Measuring the light speed and liquid refractive index in liquid
3. Measuring the light speed and solid refractive index of solid
4. Measuring the light speed in Air Based on Phase Modulation Signal
5. Extended experiment: Measurement of other transparent liquids and solid media

Multi-channel Infrared Radiation Measurement Experiment **BEX-8209****Experimental Contents**

1. Radiation temperature measurement of different color samples
2. Radiation temperature measurement of different material samples
3. Radiation temperature measurement of samples with different roughness
4. Radiation temperature measurement of blackbody block
5. Extended experiment: Measurement of emissivity of different samples

Type P and N Hall effect experimental apparatus **BEX-8508C****Experimental Contents**

1. Study the relationship between Hall Voltage and Working Current in Hall chips
2. Study the relationship between Hall Voltage and Magnetic Induction Intensity (Electromagnetic Excitation Current)
3. Study the influence of unequal potential difference of Hall Chip on Hall Voltage and its elimination method
4. Judge the carrier type of semiconductor materials
5. Study the Hall coefficient, carrier concentration, conductivity, and mobility of P-Type and N-Type semiconductor materials

785nm Raman Experiment **BEX-8206****Experimental Contents**

1. Understand and master the basic principles, composition, and structure of Raman spectroscopy instruments
2. Analyze and test liquid and solid samples to obtain Raman spectra

Metal Electric Work Function Experiment **BEX-8509****Experimental Contents**

1. Experimental determination of Metal Electric Work Function
2. Learn basic experimental methods such as Richardson straight-line measurement, extrapolation measurement, and compensation measurement

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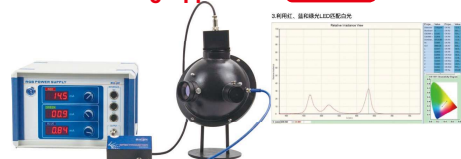
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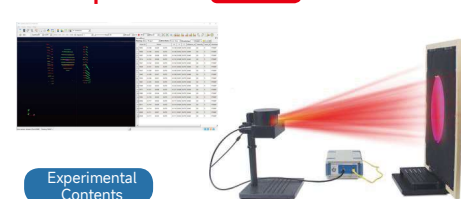
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New Energy Experiment BEX-8202**Experimental Contents**

1. The output characteristics of Solar Cells: Current -Voltage characteristics and Power-Voltage characteristics
2. The output characteristics of Hydrogen-Oxygen Fuel Cell
3. Charging characteristics of supercapacitors

Color Matching Apparatus BEX-8204**Experimental Contents**

1. Relative strength calibration
2. Measurement of LED/LD optical characteristics
3. Measurement of chromaticity parameters
4. Color matching

Lidar Experiment BEX-8207**Experimental Contents**

1. Understand the basic principle of LiDAR imaging;
2. Use the experimental device to recognize the three - dimensional graphics of the front target;
3. Understand the TOF (Time of Flight) measurement principle, measure the target position (distance) and the relative distance between multiple targets;
4. Through experiments, master a variety of methods to measure the vertical angular resolution of LiDAR;
5. Through experiments, measure the single scan angle of the LiDAR at different speeds, that is, the horizontal angular resolution;
6. Through experiments, understand the ability of LiDAR to distinguish targets at different distances;
7. Understand the algorithm of LiDAR to calculate the target space coordinates;
8. Observe the influence of different media on LiDAR imaging.

Galvanometer-based Laser Scanning Apparatus BEX-8203A**Experimental Contents**

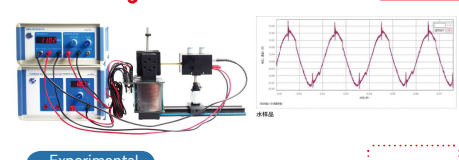
1. Demonstration of laser scanning
2. Measure the focal length of F-theta lens
3. Maximum scanning range determination
4. Pincushion distortion and barrel distortion
5. Use of beam expanders
6. XY scanning center deviation measurement and calibration
7. Scanning image parameter setting and scanning size correction

ModuSpec Spectral Analysis Kit BEX-8205**Experimental Contents**

Observe different spectrum of various light sources, measure the absorbance curve of liquid samples, measure the concentration of the samples, measure the reflectance curve of the sample and obtain its chromaticity parameters, measure the transmittance curve to obtain optical characteristic parameters such as the center wavelength, transmittance, and full width at half maximum of the sample.

LED Characteristic Test Apparatus BEX-8202

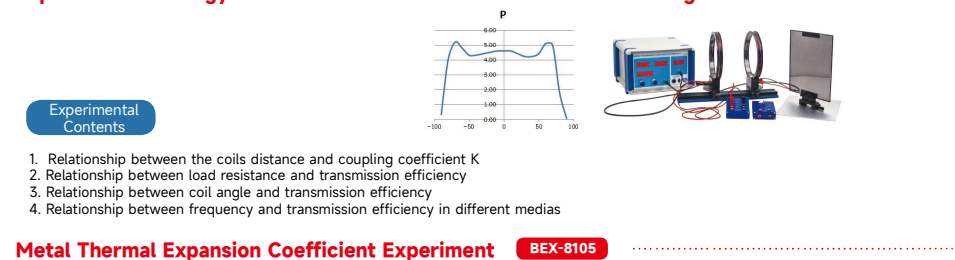
Experimental Contents	BEX-8202-A	BEX-8202-B	BEX-8202-C
V-A characteristic test experiment	○	○	○
Experiment on the Relationship between Light Intensity and Current	○	○	○
Experiment on the Relationship between Luminous Flux and Current	○	○	○
Measurement experiment of spatial distribution characteristics of LED output light	○	○	○
Measurement experiment of chromaticity parameters of different LEDs	○	○	
RGB Color Matching Experiment	○		
Measurement experiment of VT coefficient (ripple) of pulse power supply	○	○	
K coefficient measurement experiment	○	○	
Measurement experiment of junction temperature and thermal resistance	○	○	

Nuclear Magnetic Resonance (NMR) BEX-8505**Experimental Contents**

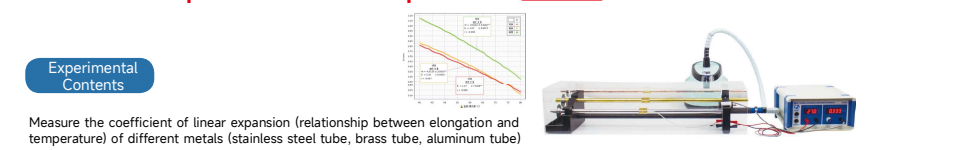
1. Observe the NMR of H⁺ and F⁻ samples
2. Calculate the g factor of H⁺ and F⁻

He-Ne Laser Apparatus BEX-8201**Experimental Contents**

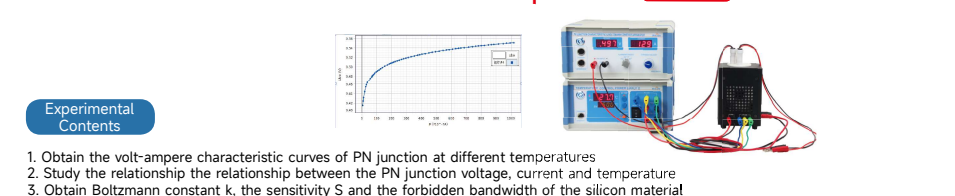
1. Understand the laser structure and learn to adjust the resonant cavity
2. Measure laser's longitudinal mode
3. Verify the laser is linear polarization output

Experiment of Energy Transmission Characteristics in the Electromagnetic Field BEX-8103**Experimental Contents**

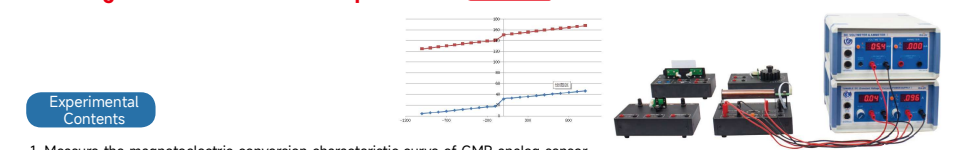
1. Relationship between the coils distance and coupling coefficient K
2. Relationship between load resistance and transmission efficiency
3. Relationship between coil angle and transmission efficiency
4. Relationship between frequency and transmission efficiency in different medias

Metal Thermal Expansion Coefficient Experiment BEX-8105**Experimental Contents**

Measure the coefficient of linear expansion (relationship between elongation and temperature) of different metals (stainless steel tube, brass tube, aluminum tube)

PN Junction Characteristic & Boltzmann Constant Experiment BEX-8507**Experimental Contents**

1. Obtain the volt-ampere characteristic curves of PN junction at different temperatures
2. Study the relationship the relationship between the PN junction voltage, current and temperature
3. Obtain Boltzmann constant k, the sensitivity S and the forbidden bandwidth of the silicon material

Giant Magnetoresistance Effect Experiment BEX-8511**Experimental Contents**

1. Measure the magnetoelectric conversion characteristic curve of GMR analog sensor.
2. Measure the magnetic resistance characteristic curve of GMR.
3. Measure the magnetoelectric conversion characteristic curve of GMR switch (digital) sensor.
4. Measure the magnetic field distribution curve of the energized solenoid.
5. Measure the wire current with GMR sensor.
6. Use the GMR gradient sensor to measure the angular displacement of the gear to understand the principle of the GMR speed (speed) sensor.
7. The principle of magnetic card recording and reading through GMR sensor.