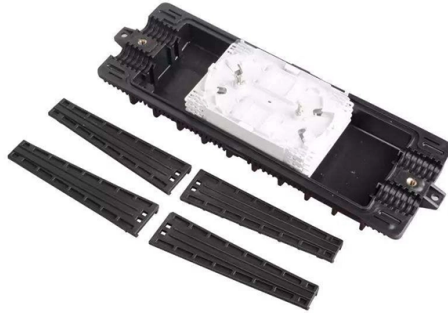


DIY Ultraviolet Spectrometer



Article Overview

A DIY ultraviolet spectrometer can be built using simple components like a light source, diffraction grating, sample cell, and a sensor or microcontroller for data collection.

Core Components

- **UV Light Source:** A deuterium lamp or UV LED can provide the ultraviolet spectrum (100–400 nm) needed for analysis . For combined UV-VIS applications, a halogen lamp can cover visible and near-infrared ranges .
- **Monochromator / Diffraction Grating:** To separate light into its component wavelengths, use a prism or a diffraction grating. A CD or DVD fragment can serve as a low-cost diffraction grating for DIY setups .
- **Sample Cell (Cuvette):** The material to be analyzed is placed in a transparent container aligned with the light path. Ensure the light passes straight through to minimize scattering .
- **Sensor:** A photoresistor, photodiode, or specialized spectral sensor (e.g., AS7265X) can detect the intensity of light at different wavelengths .
- **Microcontroller / Data Interface:** Arduino or Raspberry Pi can read sensor data and display or log the spectrum. Arduino serial monitor or Python scripts can be used for visualization .

Assembly Steps

- Construct a light-tight body for the spectrometer using cardboard, plastic, or 3D-printed parts to prevent ambient light interference .
- Install the light source at one end and align it with the sample cell.
- Place the diffraction grating between the sample and the sensor to disperse the li...

Article Content

How To Make A Diy Spectrometer

This instructable teaches you how to build a low-cost spectrometer using simple materials, such as a 100 W light bulb,

4.4: UV-Visible Spectroscopy

Ultraviolet-visible (UV-vis) spectroscopy is used to obtain the absorbance spectra of a compound in solution or as a solid. What is

Viking Spectrophotometer: A Home-Built, Simple, and Cost-Efficient ...

The spectrophotometer is built from cost-efficient materials and is easily scalable, making it affordable for many

The Basics of UV-Vis Spectroscopy

Spectroscopy allows the study of how matter interacts with or emits electromagnetic radiation. There are different types of

MJAS Vol 27 No 3 (2023)

A device used for analysis called an Ultraviolet-visible (UV-Vis) light spectrophotometer examines the analyte absorbances of light, at

A Simple DIY Spectrophotometer

A Simple DIY Spectrophotometer: What's all this? This instructable will explain how to build a fairly basic but working

DIY Spectrometer

A spectrometer takes light from some source and splits it into its different wavelengths, creating a rainbow effect you

DIY UV-VIS Arduino UNO : 10 Steps

DIY UV-VIS Arduino UNO: The following procedure will teach you how to create a DIY UV-VIS spectrometer from supplies at home

DIY Spectrophotometer

has been making a DIY Spectrophotometer, and while it is a “shambling mess of information-age

Hacking STEM DIY Spectrometer

Build a simple spectrometer out of LEDs to see what wavelengths are in different types of light! By Hacking

Hacking STEM DIY Spectrometer

For this project, our goal was to teach students of all ages what electromagnetic radiation is, how we

Arduino spectrometers – Geo Imagine Developer

DIY plasma glucose spectrophotometer In 2018 the journal Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy,

Homemade Optical Spectrometer – Steve the Engineer

After a bit of research, I discovered an instrument called an optical spectrometer that is designed to

DIY Low Cost Spectrometer : 10 Steps (with Pictures)

With this low-cost spectrometer, you can perform various simple and interesting experiments right from

UV Spectrophotometry

Our aim is to build a working prototype of this UV spectrophotometer, compare its performance to similar commercial instruments

Build an Arduino UV Index Meter | DroneBot Workshop

UV Light has both positive and negative effects on human health. In this detailed article I'll show you how to safely

High resolution DIY spectrometer

Overall, a fully functional, low cost and high resolution DIY DSLR based spectrometer has been designed and constructed. The

An Arduino-powered Microplate Spectrophotometer : 16 Steps

An Arduino-powered Microplate Spectrophotometer: Spectrophotometers are common pieces of equipment in a bioscience lab. They

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