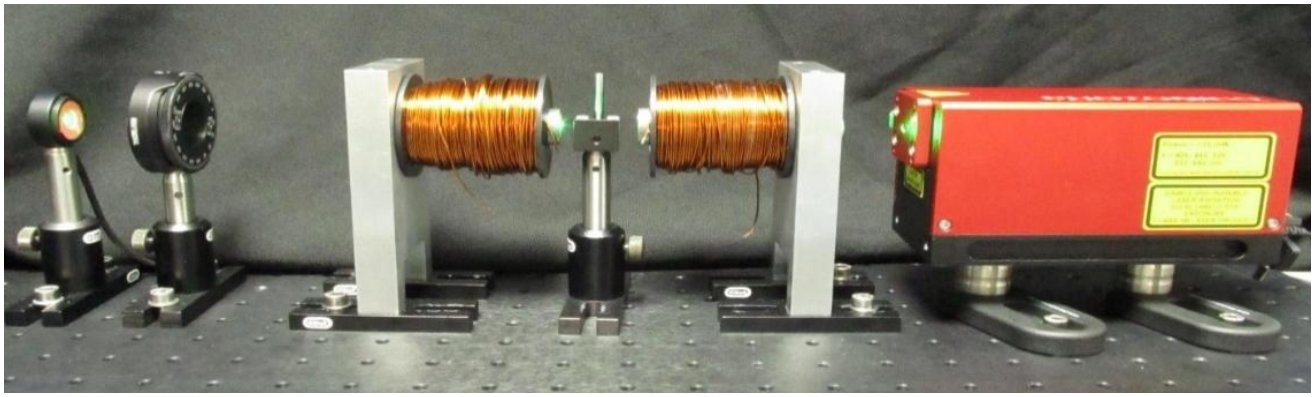
PHOTONICS
TECHNOLOGIES

HEXA-BEAM LASER

EXPERIMENT 4:
THE FARADAY EFFECT IN CHIRAL MATERIAL

Introduction

The Faraday Effect describes the rotation of the plane of polarisation of light through a medium when a magnetic field is applied. This experiment investigates this effect by passing light through a transparent sample under a magnetic field and observing the change of polarisation axis as a result, analysing the influence of circular birefringence and circular dichroism on a medium in the presence of a magnetic field.



Experiment Aim

To measure the change of polarisation axis through a transparent sample and investigate how these changes with wavelength using the HEXA-BEAM laser.

Tasks

1. Use a Hall probe to investigate and calibrate the magnetic field of two coils
2. Measure the rotation of the plane of polarisation for a range of wavelengths
3. Calculate the Verdet's constant for each wavelength