

LAB 9: Polarization

Results (Polarization)

The polarimeter is used for the determination of the concentration of optically active substances. For this a sodium light with a wavelength of 589 (nm) is linearly polarized by means of a polarizer. This light passes through the solution to be investigated and is observed through an analyzer. Optically active substances rotate the polarization plane. By measuring the rotational angle by means of the analyzer, the concentration of the solution can now be calculated using the following relation :

$$s = \frac{\theta}{L \cdot c}$$

$$\rightarrow \theta = s \cdot L \cdot c \quad \rightarrow \text{slope} = \frac{\theta}{c}$$

$$\theta \propto L$$

$$\theta \propto c$$

a) Determination of the length of the tube(optical path)

$$L = 200 \text{ (mm)} = 2 \text{ (dm)}$$

b) Optical zeroing (calibration)

1. Switch on the sodium lamp and wait a short time for it to warm up.
2. Turn the analyzer with the adjustment screw to 0° so that the circle is uniformly lit (**dark**), i.e. so that no central line is visible. When the analyzer is turned about the zero position the central line and the two edge areas become light or dark. For this reason deviations from the zero position can very easily be observed.

c) Filling a round cuvette (tube)

1. Hold the tube vertical so that the thicker part is at the top.
2. Take off the upper screw ring; remove the internal cap, sealing ring and glass disc.
3. Fill the tube with the liquid to be investigated with as few bubbles as possible.
4. Replace the glass disc, sealing ring and internal cap and tighten with the screw ring.

d) Determination of the angle of rotation (θ)

1. Place the tube with the liquid to be investigated into the sample chamber Turn the analyzer with the adjustment screw in such a way that the observed circle is again uniformly (**dark**).
2. Read the angle of rotation θ from the scale by means of the vernier scale

$c \text{ (}\% \text{)}$	$\theta \text{ (}^\circ \text{)}$
0%	$\theta = 0$
5%	3.8
10%	6.6
15%	10.3
20%	13.8
Unknown	5.2

Slope = 0.7
 unknown $\Rightarrow c = 7.3$
 $\theta = 5.2$

$$L = 200 \text{ mm} = 2 \text{ dm}$$

$$s = \frac{\text{Slope}}{L} = \frac{0.7}{2} = 0.35 \text{ (dm)}^{-1}$$

Polarization Answers Sheet

Genrikh Saulovich Al'tshuller



Polarization Answers Sheet:

Physics, Volume 2 David Halliday, Robert Resnick, Kenneth S. Krane, 2010-04-20 Written for the full year or three term Calculus based University Physics course for science and engineering majors the publication of the first edition of Physics in 1960 launched the modern era of Physics textbooks It was a new paradigm at the time and continues to be the dominant model for all texts Physics is the most realistic option for schools looking to teach a more demanding course The entirety of Volume 2 of the 5th edition has been edited to clarify conceptual development in light of recent findings of physics education research End of chapter problem sets are thoroughly over hauled new problems are added outdated references are deleted and new short answer conceptual questions are added [Optics and Modern Physics for JEE Advanced, 3E \(Free Sample\)](#) B. M. Sharma, 2022-05-19 Optics and Modern Physics for JEE Advanced a Cengage Exam Crack Series product is designed to help aspiring engineers focus on the subject of physics from two standpoints To develop their caliber aptitude and attitude for the engineering field and profession To strengthen their grasp and understanding of the concepts of the subjects of study and their applicability at the grassroots level Each book in this series approaches the subject in a very conceptual and coherent manner While its illustrative solved examples facilitate easy mastering of the concepts and their applications an array of solved problems exposes the students to a variety of questions that they can expect in the examination The coverage and features of this series of books make it highly useful for all those preparing for JEE Main and Advanced and aspiring to become engineers

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Fundamentals of Physics, Chapters 33-37 David Halliday, Robert Resnick, Jearl Walker, 2010-03

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technological revolution Back cover **The Psychology of Group Perception** Vincent Yzerbyt, Charles M. Judd, Olivier Corneille, 2004-08-02 This groundbreaking work by leading social psychologists who have all contributed in important ways to the psychology of group perception focuses in particular on three interrelated issues 1 whether groups are seen to be diverse or relatively homogeneous 2 whether groups are seen as real and stable or only transitory and ephemeral and 3 whether group membership derives from some essential quality of the members or rather is based on social constructions

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Governance and Polarization David K. Jesuit, Russell Alan Williams, 2017-07-06 Polarization is widely diagnosed as a major cause of the decline of evidence based policy making and public engagement based styles of policy making. It creates an environment where hardened partisan viewpoints on major policy questions are less amenable to negotiation compromise or change. Polarization is not a temporary situation it is the new normal. Public Policy Governance and Polarization seeks to provide a theoretical foundation for scholars and policy makers who need to understand the powerful and often disruptive forces that have arisen in Europe and North America over the past decade. Academics and practitioners need to better understand this growing trend and to find ways in which it may be managed so that policy solutions to these threats may be developed and implemented. Researchers and future policymakers in fields such as public administration public management and public policy need to recognise how institutional design corporatist interest group systems and different pedagogical approaches may help them understand discuss and work beyond policy polarization. Edited by two leading political science scholars this book aims to begin that process. **Lectures in Quantum Mechanics** Luigi E. Picasso, 2015-10-26 Based on a series of university lectures on nonrelativistic quantum mechanics this textbook covers a wide range of topics from the birth of quantum mechanics to the fine structure levels of heavy atoms. The author sets out from the crisis in classical physics and explores the seminal ideas of Einstein Bohr and de Broglie and their vital importance for the development of quantum mechanics. There follows a bottom up presentation of the postulates of quantum mechanics through real experiments such as those of neutron interferometry with consideration of their most important consequences including applications in the field of atomic physics. A final chapter is devoted to the paradoxes of quantum mechanics and particularly those aspects that are still open and hotly debated to end up with a mention to Bell's theorem and Aspect's experiments. In presenting the principles of quantum mechanics in an inductive way this book has already proved very popular with students in its Italian language.

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