GRAM STAIN

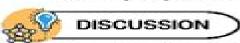


The simple staining procedure makes it possible to see bacteria clearly, but it does not distinguish between organisms of similar morphology. Hence, differential staining was developed. It is a type staining technique that requires the use of at least four chemical reagents that are applied sequentially to a heat-fixed smear. The first reagent is called the primary stain. Its function is to impart its color to all cells. The second stain is a mordant used to intensify the color of the primary stain. In order to establish a color contrast, the third reagent used is the decolorizing agent. Based on the chemical composition of cellular components, the decolorizing agent may remove the primary stain from the entire cell or only from certain cell structures. The final reagent, the counterstain, has a contrasting color to that of the primary stain. Following decolorization, if the primary stain is not washed out, the counterstain cannot be absorbed, and the cell or its components will retain the color of the primary stain. If the primary stain is removed, the decolorized cellular components will accept and assume the contrasting color of the counterstain. In this way, cell types or their structures can be distinguished from each other on the basis of the stain that is retained.



Once this module has been completed, the student should be able to:

- Explain the chemical and theoretical basis for differential staining, procedures.
- Describe the chemical basis for the Gram stain.
- Seriorm the procedure to differentiate between two principal groups of bacteria: gram positive and gram negative.



The most important differential stain used in bacteriology is the **Gram stain**, named after Dr. Hans Christian Gram. It divides bacterial cells into two major groups, gram-positive and gram-negative, which makes it an essential tool for classification and differentiation of microorganisms.

Lab Module 6 Gram Staining Introduction Clark College

Huangqi Zhang

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a four quadrant or multiple quadrant operation is required in industrial as well as commercial applications these applications require both driving and braking i e motoring and generating capability some of these applications include electric traction systems cranes and lifts cable laying winders and engine test loading systems

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speed control of a machine is the most vital and important part in any industrial organization this paper is designed to develop a four quadrant speed control system for a dc motor using microcontroller the motor is operated in four quadrants i e clockwise counter clock wise forward brake and reverse brake

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paper proposes a way to govern the rate and route control of a dc motor with the help of a 4 quadrant dc dc chopper the speed under the base velocity may be controlled by way of armature voltage manage technique mosfets are used for the switching operation of the chopper the gates of those mosfets are given pwm

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the four quadrant chopper block represents a four quadrant controlled chopper for converting a fixed dc input to a variable dc output the block contains two bridge arms each bridge arm each has two switching devices options for the type of **four quadrant speed control of dc motor with microcontroller** - Jan 13 2023

3 four quadrant operation of dc motor four quadrant operation or mode of any dc motor means that machine operate in four quadrants they are forward breaking mode forward motoring mode reverse breaking or stop mode and reverse motoring mode a motor operates in two modes motoring and breaking a motor drive capable of

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aug 8 2020 1 answer sorted by 1 you can think of the first quadrant operation as being a buck converter down from the supply to the motor you can think of the second quadrant as being a boost converter from the motor s generated low voltage up to the supply voltage

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put simply the four quadrants that the controller can work in are 1 motor going clockwise controller applying clockwise drive 2 motor going anti clockwise controller applying anti clockwise drive 3 motor going clockwise controller applying anti clockwise drive 4 motor going anti clockwise controller applying clockwise drive

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four quadrant operation of dc motor means that the machine operates in four quadrants they are forward braking forward motoring reverse motoring and reverse braking a motor operates in two modes motoring and braking experiment 6 four quadrant operation of dc motor - Mar 15 2023

1 to observe the four quadrant operation of a dc motor 2 to control a motor under torque control 3 to couple the speed control motor and torque controlled motor and observe the effect of a stepped torque 6 2 four quadrant operation of a dc motor the four quadrant operation is performed by giving an alternating reference speed command to

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aug 16 2021 the four quadrant operation of the motor can be described as follows quadrant i in the first quadrant the developed power by the motor is positive thus the motor operates in motoring mode and converts electrical energy into mechanical energy therefore the operation of the motor in first quadrant is called forward motoring quadrant ii

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the control of bldc motor in four quadrants is very crucial in this paper bldc motor is controlled in all the four quadrants without any wastage of power during regenerative braking period power generated is being stored in the chargeable battery **four quadrant operation of dc motor sciamble** - May 17 2023

aug 3 2019 introduction in this experiment four quadrant operation of a dc motor is simulated as well as run in real time the speed and current control model developed in the previous experiment is used to emulate the four regions of operation theoretical background consider an elevator system shown in figure below

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