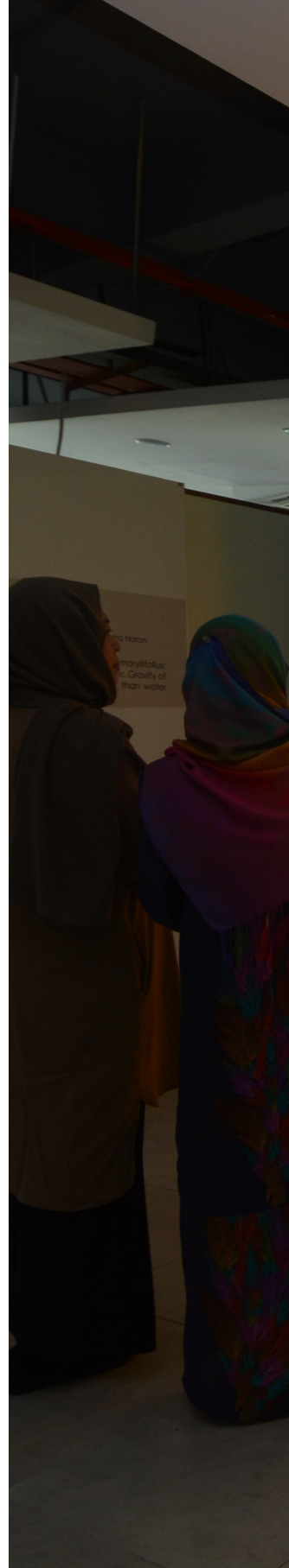


The Bouncy Beam

The nervous system consists of nerve cells or neurons, which can transmit information in the form of electrical signals to our sense organs. Neurons generally are not a good electrical conductor; however, they have elaborate mechanisms for generating electrical signals by eliminating negative resting potentials. Negative resting potentials occur due to the accumulation of more sodium ions outside the cell than potassium ions inside the cell. The resting potential is determined by the selective permeability of the membrane to different types of charged particles, and the uneven distribution of the particles between the inside and outside of a cell. The action potential is the electrical impulses used as communicative agents that connect cells with excitable membranes, such as the neurons, muscles cells, and endocrine cells. Action potentials, which are transmitted along the axons, abolish the negative resting potential by making the transmembrane potential transiently positive through electrochemical gradients of ions.

The artefact shows the 'jumping' action of an electric current from one light to another. This action mimics the 'bouncing' action of electrical signals containing information, upon the arrival of an action potential, from one axon to another in the nervous system. When an action potential has occurred at the initial node, a local current causes neighbouring sections to depolarise. Ion pumps at the axon cell membrane ensure the distribution of ions is normalised and ready for the next threshold.

Mariatulqabtiyah Abdul Razak and Ruqayyah Ainul Bashirah





Author

www.ahmedshah.com

Artwork was created in 2015 and is part of the 'The Art of Light' series. It is a collaboration between the artist and the gallery.

Bioluminescence

Bioluminescence is the production and emission of light by a living organism. It is a natural phenomenon that has been observed in various organisms, including fireflies, deep-sea fish, and certain fungi.

Bioluminescent microorganisms include bacteria, fungi, and certain types of algae. These organisms produce light through a chemical reaction that involves the enzyme luciferase. Bioluminescent organisms are often used in scientific research and in the development of bioluminescent sensors and imaging techniques.

