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SCIENCE DAILY

Charon: An Ice Machine In The Ultimate Deep Freeze

Frigid geysers spewing material up through cracks in the crust of Pluto's companion Charon, and recoating parts of its surface in ice crystals, could be making this distant world into the equivalent of an outer solar system ice machine. The...

Gene Variant Increases Risk Of Blindness

Researchers have found a gene variant that can more than double the risk of developing the degenerative eye disease, age-related macular degeneration.

Satellite Data Can Warn Of Famine, NASA Researchers Find

Scientists have developed a new method to anticipate food shortages brought on by drought. They created a model using data from satellite remote sensing of crop growth and food prices. Supply and demand largely dictate food prices, with greater supply...

Vitamin D Deficiency: Common And Problematic Yet Preventable

An expert on vitamin D explains the role vitamin D plays in a wide variety of chronic health conditions, as well as suggesting strategies for the prevention and treatment of vitamin D deficiency. Humans attain vitamin D from exposure to...

Welcome to the SPP Website

The Samahang Pisika ng Pilipinas (SPP) is a professional organization of physicists and physics educators in the Philippines. SPP was established in 1979 with the aim of setting a collegial venue where researchers in various fields of physics find equal and unfettered opportunity for creative scientific work and productive exchange of ideas. The SPP has been conducting an annual conference showcasing current trends in physics research and education. SPP is a member of the Association of Asia Pacific Physical Societies (AAPPS) and is duly registered with the **Philippine Securities and Exchange Commission** as a non-stock and non-profit corporation with registration number 91554. The members elect officers of the SPP **National Council** every two years and the election usually coincides with the conference. Interested parties in the Philippine physics community may apply (or renew) for **membership**.

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Scientists propose a technique to improve light throughput in multimedia projectors

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Research News

6 July 2007, Roskilde, Denmark. Scientists at Risø National Laboratory, Denmark has proposed an optical technique that allows for utilization of low power light sources for image multimedia projectors. Such projectors are ubiquitous equipment and a very useful tool for effective relay of information. Nowadays, it is difficult to imagine delivering a talk without your animated slides following in-sync on a projection screen.

The current technology implemented in these devices, however, is very wasteful in terms of energy. Firstly, because tungsten-halogen lamps generate a lot of heat energy as by-product to the light produced. And secondly, much of the light from the lamp does not actually go into the projected image, but is simply discarded - particularly when the depicted scene contains many dark elements.



Carlo Alonzo (SPP Member)



Peter Rodrigo (SPP Member)



Jesper Glückstad (Team leader)

The team of scientists is comprised of Carlo Amadeo Alonzo (SPP Member), Peter John Rodrigo (SPP Member) and Jesper Glückstad. In their recent paper¹, they presented the theory behind their proposed technique for efficiently producing two-dimensional images using a laser light source. Through

computer simulations, they demonstrated that their technique could produce high quality images while using an impressive 87% of the incident light. The projection system could become even more efficient, up to 98%, if some compromises are made in terms of image quality.

The implications of their method actually go beyond simple display projection devices. Many serious photonics research application stand to benefit from the ability to project lasers into arbitrary shapes and intensities with minimal energy loss. Among these are laser etching of material surfaces, data storage and handling in optical information systems. The team's particular field interests are optical trapping and manipulation of microscopic particles and biological cells.

Carlo Alonzo is an active member of SPP and a former councilor of the SPP National Council. He completed his BS, MS and PhD degrees in Physics from the National Institute of Physics, University of the Philippines. Peter Rodrigo, also an SPP member, completed his BS and MS degrees in Physics from the University of the Philippines. He finished his PhD degree from the Neils Bohr Institute in Copenhagen, Denmark. Alonzo and Rodrigo are currently post-doctoral scientists at the Risoe National Laboratory in Denmark. They both belong to the Programmable Phase Optics research group (www.ppo.dk)

Reference

1. CA Alonzo, PJ Rodrigo and J Glückstad, Photon efficient grey-level image projection by the generalized phase contrast method, New Journ of Physics 9, p132 (2007)

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PHYSICSWEB NEWS

Partnership to boost fuel-cell research

Oak Ridge National Laboratory in the US and the Jülich Research Centre in Germany have signed an agreement to jointly develop fuel cells, which are widely perceived as one of...

Liquid jets bounce along

Physicists in the US have released astonishing photographs of jets of liquid bouncing along the surface of a bath. The jets, which sometimes resemble an undulating sea serpent, were created...

Nanostructures help mosquitoes walk on water

Mosquitoes can stick to walls and windows like flies, and happily land and walk on water like pond skaters. Although entomologists have known about this unique ability for years, they...

Dark-energy teams win cosmology prize

Two independent teams of researchers who discovered that the expansion of the universe is accelerating have been awarded this year's Gruber Cosmology Prize. The prize, worth \$500,000, has been given...

First "heat transistor" unveiled

Physicists in Finland and Italy claim to have built the world's first "heat transistor" in which the flow of heat between two electrodes is controlled by a voltage applied to...