

Title: Pioneering Research to Unlock Secrets of Nature's Energy Efficiency: Diatoms in the Spotlight

Subheading: A Unique Collaboration Between the Ultrafast Laser Facility (IESL) and Proteomics (IMBB) Facility at FORTH, coupled with Cyprus University of Technology, Aims to Unveil Diatoms' Energy Secrets, Targeting Global Energy Solutions

The world is on the cusp of a new era in sustainable industrial production, with an innovative research project leading the charge. This cutting-edge effort, which focuses on the utilization of renewable biomass for the production of energy, fine-chemicals, active compounds, and materials, represents a significant step forward in sustainable technology.

At the heart of this endeavor are diatoms (Bacillariophyta), the most abundant species of phytoplankton on Earth and vital primary producers on our planet. A highly cross-disciplinary team, comprising experts in biophysical chemistry from the **Cyprus University of Technology**, advanced laser-based technologies from the *Ultrafast Laser Facility* at the **Institute of Electronic Structure and Lasers**, and proteomics from the *Proteomics Facility* at the **Institute of Molecular Biology and Biotechnology, both operating at FORTH**, has come together to explore the intricate energy capturing and transfer processes of these microorganisms.

Led by Prof. Constantinos Varotsis, Dr. Panagiotis Loukakos, and Dr. Giorgos Gouridis, this collaborative project aims to decode the molecular basis of energy utilization in diatoms, which contribute an astonishing 20% of the world's total primary production from sunlight. This research, recently bolstered by the prestigious HFRI grant awarded to Dr. Loukakos, holds the potential to revolutionize our approach to renewable energy production.

This research is not just about understanding diatoms; it's about harnessing their incredible efficiency for sustainable energy solutions. By studying these tiny, yet powerful organisms, the team hopes to unlock new ways of producing energy and other valuable commodities from renewable sources, leading us into a more sustainable and environmentally-friendly future.

Stay tuned as we embark on this exciting journey, unraveling nature's secrets to inspire future energy innovations and pave the way for revolutionary advancements in sustainable energy solutions.