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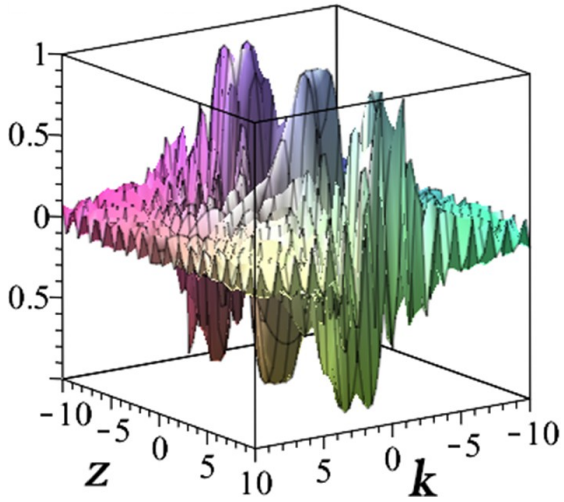
CnoidalWave

Cnoidal waves constitute a generalization of solitons, which are remarkable objects in nonlinear physics representing localized waves that preserve their shape and speed through a balance between dispersion and nonlinearity, as seen in hydrodynamics, nonlinear optics, plasmas, superconductivity, and low-temperature quantum physics.

As periodic solutions of certain integrable nonlinear equations, such as the Korteweg-de Vries, nonlinear Schrödinger, or sine-Gordon equations, they derive their name from Jacobi's elliptic functions, such as sn, cn, and dn, which underpin their mathematical expression. They also appear in physics and mathematics as spectral components in the decomposition of complex dynamics via the inverse scattering transform, itself a generalization of the Fourier transform.

Among the most spectacular physical manifestations associated with solitons, one can mention solitary waves observed in canals, giant "rogue waves" in oceans, that "appear from nowhere and disappear without a trace", ultrafast light pulses propagated without distortion in optical fibers, fluxons carrying magnetic flux quanta in superconducting Josephson junctions, and coherent density waves in Bose-Einstein condensates.



CnoidalWave

A Strong Conviction

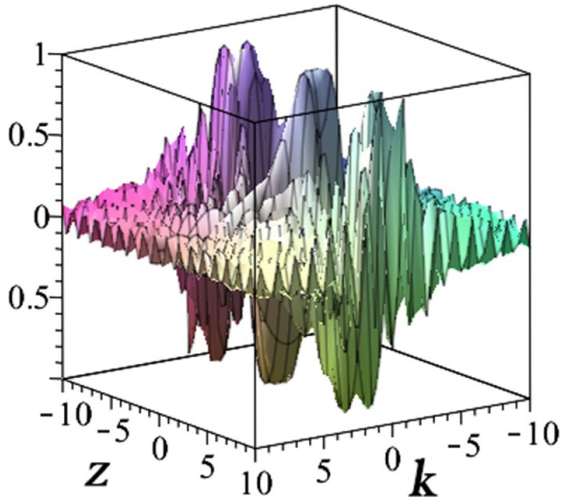
In new possibilities to outperform energy conversion compared to what is obtained by conventional means

How to Achieve It

Innovate by combining unrelated fields of research

Value Proposition

Advanced energy conversion concepts and devices
In the field of Electrical Engineering, but not only



CnoidalWave

Innovative Concepts and Devices in Advanced Energy Conversion

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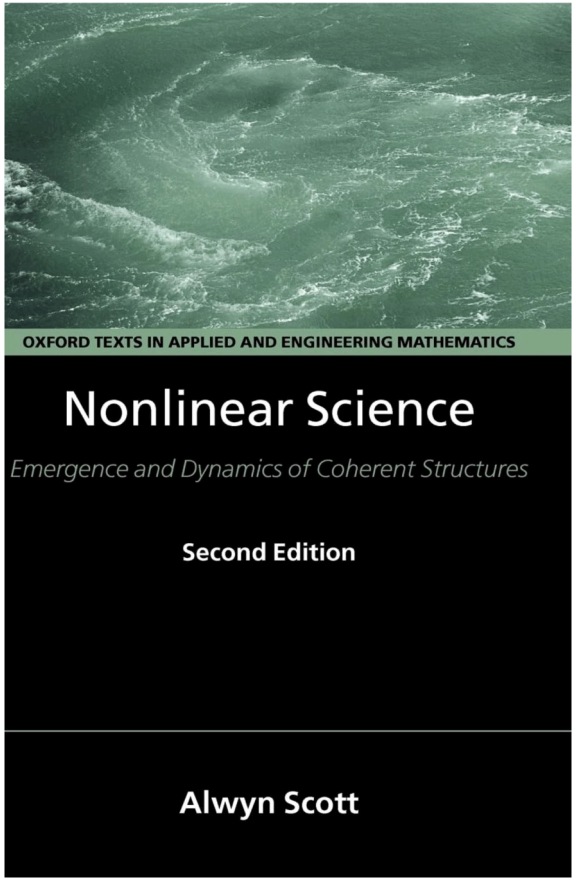
Complex Nonlinear Dynamics

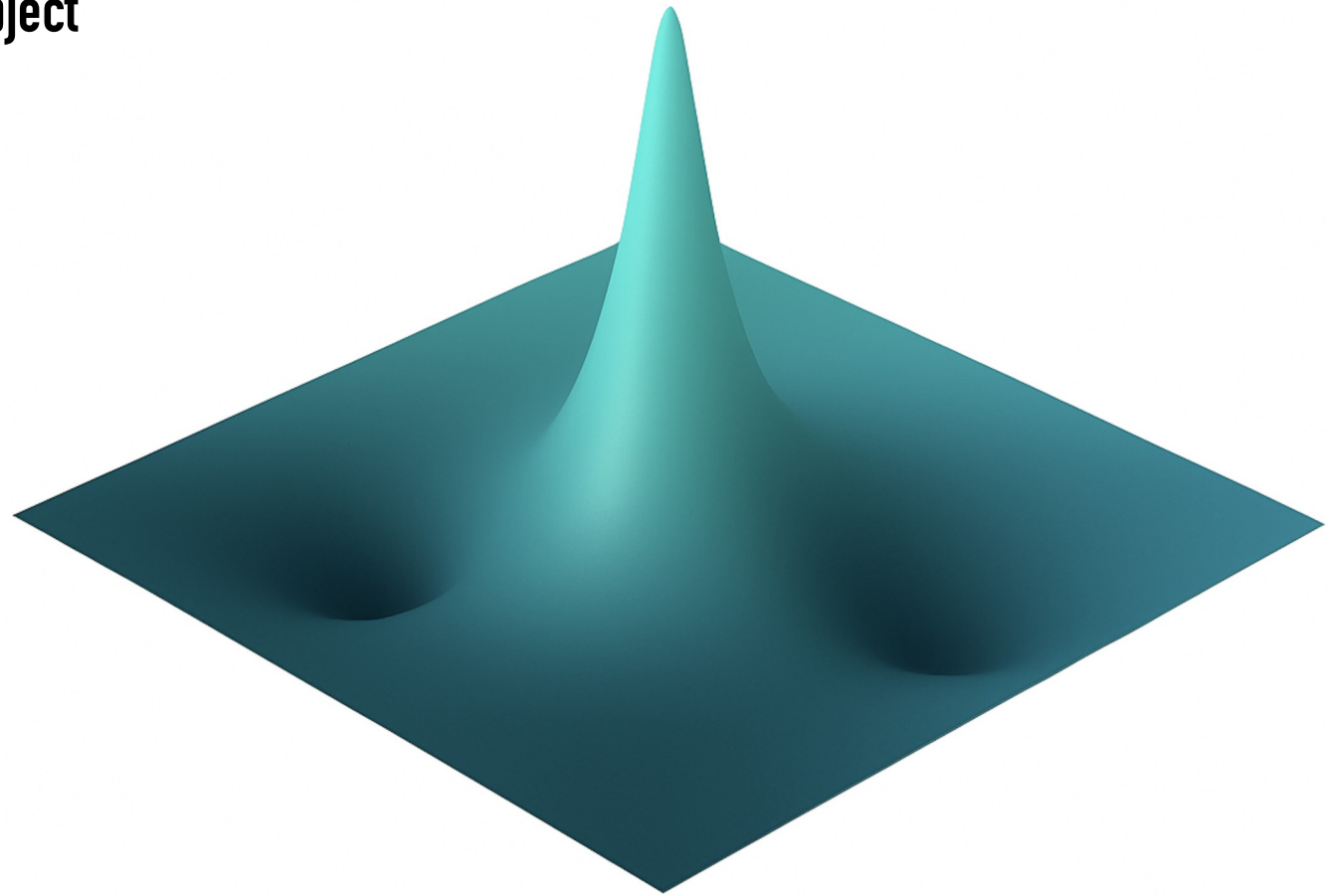
Publications

Under construction

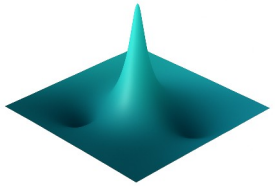
Some sources of inspiration



An inspiring object



« Wave that appears out of nowhere and disappears without a trace »
Peregrine soliton − A solution to the Nonlinear Schrödinger equation
Free tribute to the artwork from Tangerine Dream's album RUBYCON



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Complex Nonlinear Dynamics

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