

Information Physics: Towards a New Conception of Physical Reality

P. Goyal

Department of Physics, University at Albany (SUNY)
(pgoyal@albany.edu)

Abstract

The central tenet of information physics is that the concept of information is as fundamental to developing an understanding of the physical universe as are the classical concepts of space and time, matter and energy.

In this talk, I shall sketch the developments—in physics and elsewhere—that have given rise to the field of information physics, and indicate some of the many rather deep insights that ‘informational thinking’ has provided into the structure of physical theory, in particular into the mathematical structure of quantum theory. I shall also briefly sketch the emerging conception of reality (or ontology) to which these developments seem to naturally lead.

Key Words: information, statistical physics, quantum theory