

Abstract Submitted
for the TSF14 Meeting of
The American Physical Society

Most observed phenomena cannot be explained by any existing theory of physics SERGIO PISSANETZKY, UHCL — Scaling, fractals and power laws remain a mystery [M. Mitchell, “Complexity”]. No existing theory of Physics can explain them. The same applies to emergence, self-organization, adaptation, semantics, brain function. The theories themselves do not scale. A new fundamental theory of Physics is needed. To build the theory, we look for symmetries, structure, meaningful invariants. The working hypothesis is that information is fundamental, not spacetime or matter. Start from the principle of causality. Represent any system, at any scale, as a discrete set of cause-effect pairs – a causal set C . Find the groupoid G of C , the block system B induced by G on C , and the (smaller) causal set C' of B . Repeat for C' . You get a fractal hierarchy of physically meaningful invariants. This means: information is universally recursive, fractal, structured, always scales, always obeys power laws. The invariants can be anything: particles, galaxies, thoughts, companies, species, theories. It works. There are already confirmed predictions: 1: Dendrite trees in the brain are optimally short (published). 2: The Traveling Salesman problem is solved, and $P=NP$ is confirmed (under review). In my talk I will explain how heuristics make theories loose scalability.

Sergio Pissanetzky
UHCL

Date submitted: 24 Sep 2014

Electronic form version 1.4