



Rules, Randomness, and the Origins of Scaling

Anastasios Tsonis

University of Wisconsin-Milwaukee, Department of Mathematical Sciences, Milwaukee, WI, United States
(aatsonis@uwm.edu)

In Nature and in general the Universe rules and randomness coexist. First I will show how randomness emerges in the mathematical system as well in the physical, thereby making randomness not just an abstract notion but a property of the Universe. I will then demonstrate how the interplay of rules and randomness produce scaling processes in Nature including in hydrological processes. Finally, I will propose a conjecture on why randomness is a necessary property in the Universe.