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Program & Abstract Booklet

Biotic Processes in the Schrodinger Equation

Gerald H. Thomas
Louis H. Kauffman
Hector C. Sabelli

Let Psi(x,t) denote the solution to the Schrodinger equation for a single particle in a square well. We consider times series generated by A(t) = Psi(x,t) for fixed values of x and varying values of t, and show that these time series exhibit biotic behaviour. Bios has many properties of chaos with further properties in common with natural time series such as heartbeat intervals and with mathematical recursions such as x(t+1) = x(t) + g sin(x(t)) for sufficiently large values of g. The significance of this last process equation is that it embodies characteristics associated with a combination of positive and negative feedback. The talk will discuss the physical background to this work, the method of verification for these biotic properties and the context of bios, time series and quantum chaos.