

L a u d a t i o

For his original and outstanding contributions
to nonequilibrium statistical physics and game theory

Prof. Dr. JUAN PARRONDO

has been awarded the
Martin Gutzwiller Fellowship 2008/2009
of the Max-Planck Institute for the Physics of Complex Systems.

Juan Parrondo is a world-wide authority in nonequilibrium statistical physics and game theory. He is a very innovative researcher and deep thinker who has made substantial contributions to fundamental problems such as the nature of dissipation and the arrow of time, the physics of ratchets and the search for optimal strategies in games.

Juan Parrondo is most famous for being the creator of the so-called "Parrondo's Paradox", which states that one can win even when playing with a losing strategy. If two games that follow a losing strategy are played in random alternation, it is possible that this turns into a winning game. This idea stems from a deep analogy between games and stochastic transport processes and has triggered much excitement and sparked intense research. By highlighting that intuition can easily fail when judging a risky strategy he has raised the interest of a broad public for theoretical arguments.

It is characteristic for the research of Juan Parrondo that he looks at fundamental problems from a new angle and that he uncovers deep analogies between distant problems. He recently discovered an exact relation between dissipated work and powerful concepts of information theory. This relation holds in different ensembles and far from thermodynamic equilibrium. His curiosity about complex systems let him to work on many different subjects ranging from superconductivity to biophysics. Besides being interested in fundamental theory, he also works closely with experimentalists. Amongst other things, this has opened new venues for stochastic descriptions of fundamental cellular processes such as the transcription of RNA.

Professor Juan Parrondo is a prime example of outstanding scientific achievement, and we look forward to continue to see his research move towards exciting new avenues in the future.