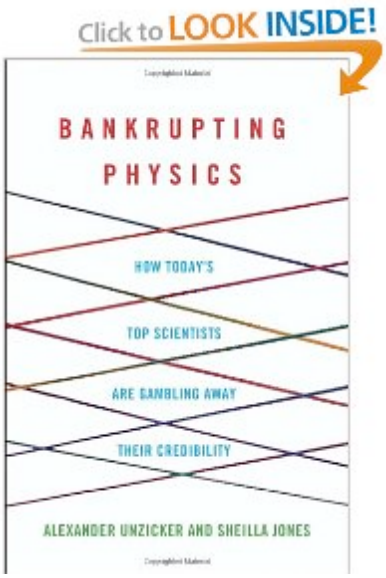

Review of BANKRUPTING PHYSICS by Alexander Unzicker and Sheilla Jones

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In a world of increased funding for science and the creation of an amazing generation of spacecraft and particle accelerators, science has had to organize itself with academic structures that can justify multi-billion Dollar/Euro projects. This momentum toward consent must necessarily come at the price of diminished attention to the lone wolf researcher whose career we glorify in reminiscence about Einstein, Heisenberg, and others.

This new book by Alexander Unzicker and Sheilla Jones paints an unflattering picture about the state of modern science in the context of these science-driving forces. The authors demonstrate in scholarly but readable discourse how the development of standard models for understanding frontier science has been at a dear cost, and often driven by the theoretical community
to the point that a corrosive science politics has become more evident than real progress in science. The detailed narratives presented and documented leave little doubt that a serious problem has arisen and engulfs frontier science.

Unzicker draws examples from the extreme frontiers of science; the standard model of sub-atomic particle physics, and the standard models of cosmological structure formation, inflation and LCDM, but also to string theory, which claims to rule them all.

This is a book that sympathetically considers the human challenge to drive progress in understanding the universe from observation and experiment. The authors are careful to distinguish the profound differences between simulation of complex physical systems, always limited by resolution so that increased detail brings fuller comparison with data, and usually more epicycles. This is contrasted with thinking, which produces fewer.

Thus the consideration of inflation theory begets particular criticism

as a safe sport among the careless theoretical community, who can freely speculate about all matters because the opaque early universe has erased the memory of what happened Thus no comparison with data need ever be feared.

The cold dark matter community faces the challenges of data, but has successfully dodged this confrontation by artfully adding epicycles to the theory with impressive skill, thereby creating an un-falsifiable theory. However contemporary comparisons to observation of obvious structure in the Local Group and Halo of our Galaxy have recently yielded tension.

Especially ripe for thinking-based improvement is the standard theory of particle physics, where the number of free parameters describing the masses and cross sections of interacting particles must, in principle, give way to a scheme with far fewer fitting parameters.

Particularly open to criticism is string theory, which has been a playground for theoreticians to claim their discovery of a theory of everything, but has not yet produced a testable prediction of anything. Here the authors are particularly critical about the failure to base speculation upon comparison to data, and point out that after perhaps 15 years of claiming a monopoly on the Theory of Everything are finding themselves increasingly un-welcome in science departments and becoming relegated to departments of mathematics and meta-physics.

They have not found the modesty string.

Thus although Dr. Unzicker's book is worth its price to read the Chapter 15 discussion of problems in the string theory landscape, the authors also find a disconcerting edge to the party in the increasing practice of censoring contribution to the arXiv, with underemployed string theorists adopting the mantle of gate-keepers to enforce wider discussion of their failing enterprise in the real science literature, and even in funding and research proposals.

Thus this book of cogent and consistent criticism will be much discussed by undergraduate and advanced students deciding on future careers; by research workers who are presently experiencing the tyranny of theoreticians who make confident predictions that turn out to be fluid with arbitrary parameters; and a general readership who wonder why the promised theory of everything has not anticipated the daily stream of discoveries now being described on the internet as wondrous and unexpected.