

Cyclotron Colloquium, Tuesday, June 1st at 3:30 PM

" Experimental evidence of repeatability in high-spin data and phenomenological interpretation
Part one: Differential distributions"

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Abstract:

We present the experimental evidence of a general correlation property of high-spin physics that we named Repeatability, consisting in highly hierarchized ordering relationships in two-dimensional gamma-ray coincidence data. However despite its generality Repeatability is hidden by the complexity of the experimental data. Moreover some of its manifestations are already included in some individually known phenomena. Both complexity and the fact itself of being partially included in some particular phenomena obscure its general observation and explain why Repeatability remained highly unknown for several decades. It results that sampling Repeatability in its whole generality as we do here restores the completeness of the experimental observation and opens the way to its phenomenological interpretation. This is done by looking for a simple but integral way of transposing Repeatability from gamma-ray coincidence data to the structure of levels. We show that the prototype of the level scheme including Repeatability becomes an open-ended geometrical locus of levels of a special object whose occurrence is unexpected at the quantum level but which is a leitmotif at larger scales of the physical universe. Our study is at the stage of this vast phenomenological hypothesis.