

PERFECT STRUCTURAL DISTRIBUTION PHENOMENON IN MATHEMATICS, TECHNOLOGY AND NATURE.

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Perfect Distribution Phenomenon, namely the concept of Ideal Ring Bundles (IRBS) can be used to discover interconnections between "perfect" ordered algebraic structures of cyclic group relationships in Galois fields and the optimal placement of structural elements in spatially and/or temporally distributed physical objects as harmonic systems with non-uniform structure (e.g. arrays of radio astronomy antennas) with respect to performance reliability, positioning precision and resolving ability. One-dimensional IRBs are cyclic sequences of integers which form perfect partitions of a finite intervals $[1, S]$ of integers. The sums of connected sub-sequences of an IRB enumerate the set of integers $[1, S]$ exactly R -times. Examples: The IRB $\{1, 3, 2, 7\}$ containing four elements allows an enumeration of all numbers: $1=1, 2=2, 3=3, 4=1+3, 5=3+2, 6=1+3+2, \dots, 13=1+3+2+7$ exactly once. Two-dimensional IRB $\{(1, 1), (2, 1), (4, 1), (3, 1)\}$ containing four elements allows an enumeration of all two-dimensional vectors, which configure 4×3 -matrix, taking modulo $m_1=5$ for calculate the first component vector sums and modulo $m_2=4$ for the second component vector sums:

$(1, 1) = (1, 1)$	$(1, 2) = (2, 1) + (4, 1)$	$(1, 3) = (3, 1) + (1, 1) + (2, 1)$
$(2, 1) = (2, 1)$	$(2, 2) = (4, 1) + (3, 1)$	$(2, 3) = (1, 1) + (2, 1) + (4, 1)$
$(3, 1) = (3, 1)$	$(3, 2) = (1, 1) + (2, 1)$	$(3, 3) = (4, 1) + (3, 1) + (1, 1)$
$(4, 1) = (4, 1)$	$(4, 2) = (3, 1) + (1, 1)$	$(4, 3) = (2, 1) + (4, 1) + (3, 1)$

The result of the calculation give us the full set of cyclic two-dimensional vector sums, and each of its occurs exactly once ($R=1$). Three- and multidimensional IRBs can be developed too. This property makes IRBs useful in configure systems with fewer elements then at present, while maintaining of improving on resolving ability and the other significant operating characteristics of the systems. A new conceptual model of the world as a perfect multidimensional meta-structure based on IRBs which allows to reproduce the maximum number of combinatorial varieties in the structure with limited number of elements and bonds has been discovered. A perfection, beauty and harmony exists not only in the abstract models but in real world.