Mirror Numbers and Wigner's "Unreasonable Effectiveness"

ALEXANDER BEREZIN, McMaster University — Wigner's "unreasonable effectiveness of mathematics in physics" can be augmented by concept of mirror number (MN). It is defined as digital string infinite in both directions. Example is (. . .)5141327182(. . .) where first 5 digits is Pi "spelled" backward ("mirrored") and last 5 digits is the beginning of decimal exp1 string. Let MN be constructed from two different transcendental (or algebraically irrational) numbers, set of such MNs is Cantor-uncountable. Most MNs have contain any finite digital sequence repeated infinitely many times. In spirit of "Contact" (C.Sagan) each normal MN contains "Library of Babel" of all possible texts and patterns (J.L.Borges). Infinite at both ends, MN do not have any numerical values and, contrary to numbers written in positional systems, all digits in MNs have equal weight – sort of "numerological democracy". In Pythagorean-Platonic models (space-time and physical world originating from pure numbers) idea of MN resolves paradox of "beginning" (or "end") of time. Because in MNs all digits have equal status, (quantum) randomness leads to more uniform and fully ergodic phase trajectories (cf. F.Dyson, Infinite in All Directions) .

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