Quantum Gravity 217.0: R. N. Sen Brings Geometric Points Back to QM

Source: http://sci.tech−archive.net/Archive/sci.physics/2007−12/msg01009.html

---

- *From*: OsherD <mdoctorow@xxxxxxxxx>
- *Date*: Wed, 19 Dec 2007 20:02:03 −0800 (PST)

From Osher Doctorow

I've over−used arXiv, which results about once a year or once every 6 months approximately in automatic "denial of access" for several weeks. However, I can access the lists of papers, and by various methods I found an abstract for R. N. Sen's latest paper. Often, Citebase works when one gets "denied access" by arXiv, but this time my Citebase connectivity seems to be out of order.

R. N. Sen is actually Rathindra Nath Sen, Professor Emeritus of Mathematics at Ben−Gurion University of the Negev, Israel. He co−authors with H.−J. Borchers of Gottingen (Georg−August U. Gottingen) Germany who is in the Physics Dept and Physics Institute. Although I was only able to find one paper of his (the one that I'm referring to here) on arXiv, he also has published, often with H.−J. Borchers, in Commun. Math. Phys, Foundations of Physics Letters, and even a Springer Berlin volume Lecture Notes in Physics: Mathematical Implications of Einstein−Weyl Causality, November 2006 (first author is Borchers).

In his paper arXiv: 0712.3045, 20 pages, physics−quant.ph, "Physics and the measurement of continuous variables," his abstract points out that Wigner thought it was doubtful that geometric points could be used in quantum or quantum−gravitational physics because exact measurement of operators like position operators is supposed to be impossible.

Sen states that he uses Sewell's recent resolution of the measurement problem (collapse of wave packet) in QM, which Sen extends to the measurement of continuous spectrum operators. He compares the situation in classical physics and QM, concluding that the notion of a geometric point is as meaningful in the latter as in the former.

I'll try to find further references to these ideas, but they are in line with both Brane Theory and the (generalized) Holographic Principle where in the former 0−branes are taken to include points, while in the latter points are as usual one dimension lower than line/

curve segments and lines/curves and so contain the knowledge/information about the latter. Even nicer, they are also in line with Probable Causation/Influence (PI), where as in the (generalized) Holographic Principle $n - k$ dimensional sets in typical n dimensional space(time) for $k = 1, 2, ..., n-1$ are key. In PI, these sets maximize $P(A{-}{-}{>}B)$ at 1 since $P(A{-}{-}{>}B) = 1 + y - x = 1 + 0 - 0 = 1$ with $0 < = y < = x < = 1$. Recall that Lebesgue measure of these $n - k$ dimensional sets is also 0 for the usual spaces.

Osher Doctorow

.