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Possible quantum eigenstates in a given system

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Position series:
S1 or |Ψ> = (1/√e1| a1>)² + (1/√e2| a2>)² + (1/√e3| a3>)² + (1/√e4| a4>)² + ...

$\int_{-\infty}^{\infty} |\psi|2\, dS1 = 1$ – Represents probability of all locations

Change of basis to Momentum gives

Momentum Series:
S2 or |Ψ> = (1/√e2| b1>)²+(1/√e2| b2>)²+(1/√e2| b3>)²+(1/√e2| b4>)²+ ....

$\int_{-\infty}^{\infty} |\psi|2\, dS2 = 1$ – Represents all probabilities of momenta

Change of basis to Spin gives

Spin Series
S3 or |Ψ> = (1/√e3| c1>)²+(1/√e3| c2>)²+(1/√e3| c3>)²+(1/√e3| c4>)²+ ....

$\int_{-\infty}^{\infty} |\psi|2\, dS3 = 1$ – Represents all probabilities of Spin direction

All eigenstates are in superposition upto infinity until observation/measurement. Each of the 3 coordinates position, momentum and spin are represented in the infinite series S1, S2 and S3 above. Interference causes the above three series to overlap.

Probability density function: $|\psi|2 = \Psi * \Psi = (e1 - ia1)(e1 + ia1) = e1square + a1square$. At any given point in time, there are only 3 bit combinations of S1, S2 and S3. For n bits, the combination is 2n.The possible set of eigenstates for all series is 2n+2n+2n+.......... For the above example |Ψ> combined for S1,S2 and S3 and so on at a given point in time, is derivative of time t times the probability of a given eigenstate,

|Ψ> =(d/dt) * 2ⁿ ($\int_{-\infty}^{\infty} |\psi|2\, dS1$ + $\int_{-\infty}^{\infty} |\psi|2\, dS2$ + $\int_{-\infty}^{\infty} |\psi|2\, dS3$ + ...)

|Ψ> = (d/dt) * 2³(1+1+1+.....) Ramanujan's infinite series theorem, 1+2+3+4........= -1/12
=(d/dt) * 2³(-1/12)
=⅔ * (d/dt)

Or alternatively,
=(d/dt) * 2³(1+1+1+1+1+1+......)
= (d/dt) * 2³(1+1+2+3+......)
=(d/dt) * 2³(1+(-1/12))
=(d/dt) * 22/3

Biography

Lalitha Nath has completed her bachelor's in the year 2005 at the age of 21 years from JNT University. She is an IT professional for the past 11 years in a premier Insurance organization. She is a Quantum enthusiast and has spent significant amount of time in researching and understanding Quantum phenomenon. Passionate in Quantum Physics, she has started writing her own papers on Quantum mechanics.

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