Probability Vs Randomness for Future Technologies

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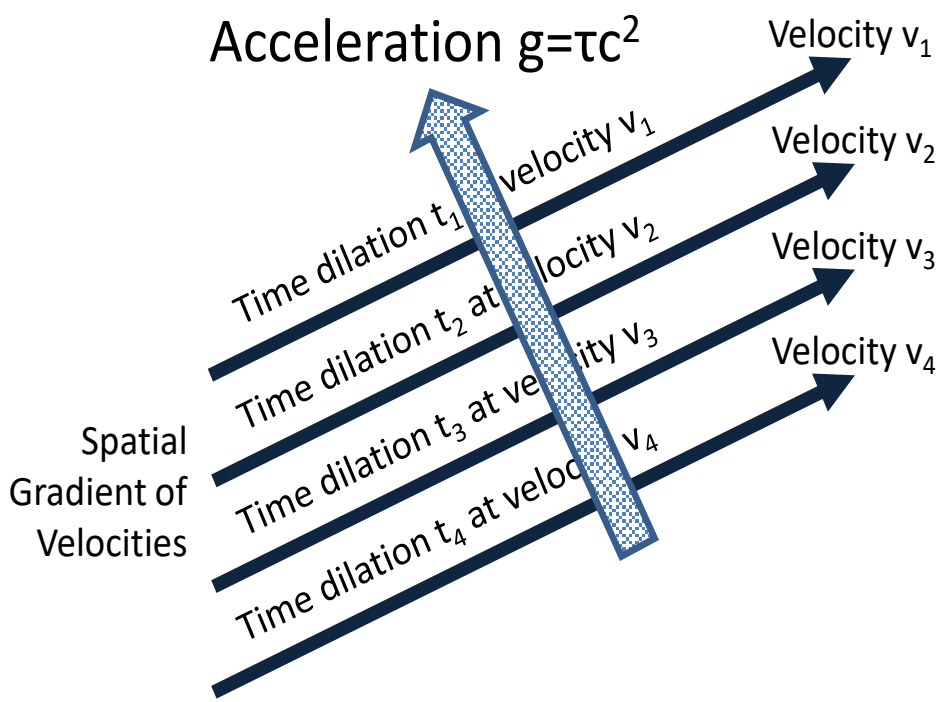
Agenda

- About
- Structure of Randomness
- Structure of Interaction
- Structure of Localization
- Proposed Experiments

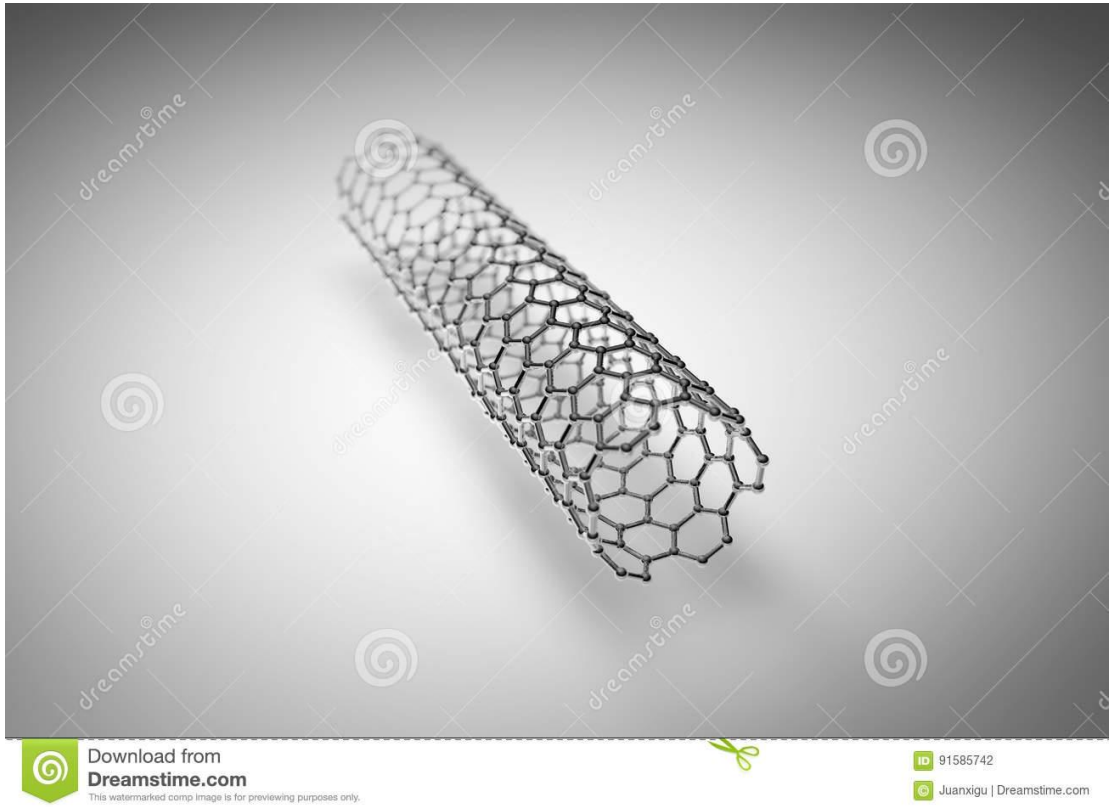
About: Benjamin T Solomon



- Proposed
  - All macro forces exhibit Non Inertia, Ni, Fields (diagram)
  - Universal formula $g = \tau c^2$ for Ni Fields
  - Isotopic gravitational coefficient G_i
    $G_i M_i = k_{iso} = 2.973856x10^{-36}\ m^3 s^{-2}$
  - Probabilistic Wave Function

$$\psi_P = \varphi_P \chi_P = \left(\frac{1}{k_P r_P}\right) sin(k_P r_P)$$

Approach: Sufficient versus Necessary

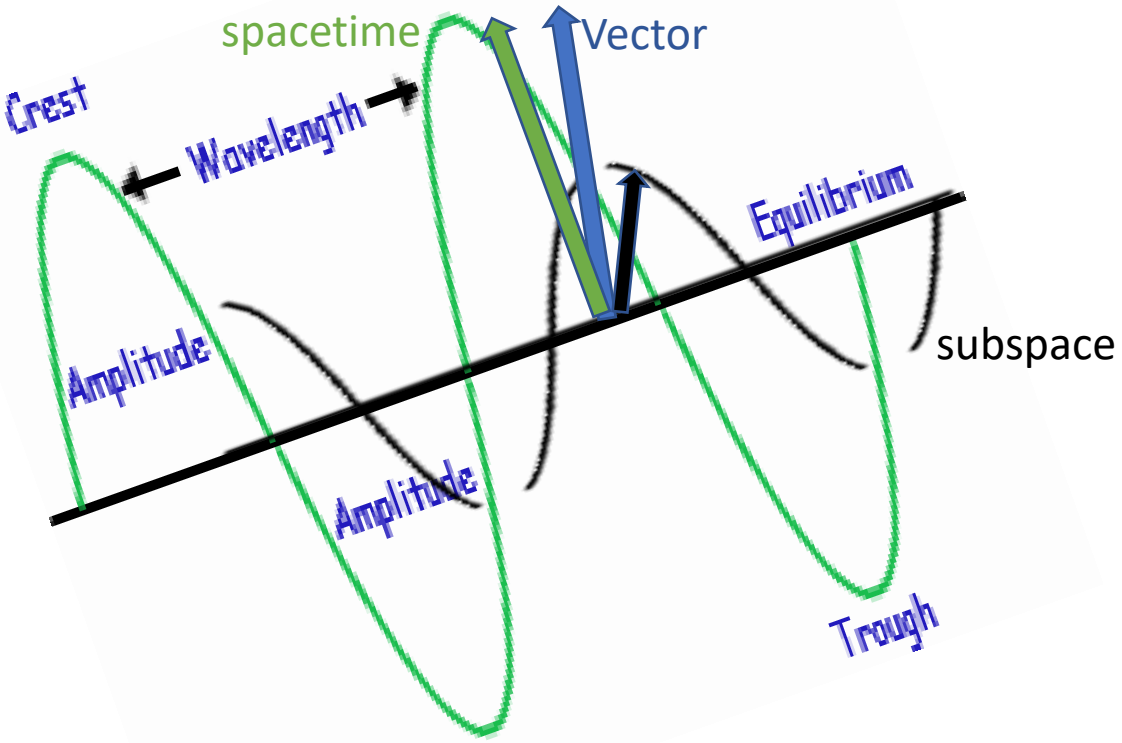


- Morris Klein: Mathematics is so sophisticated it can be used to prove anything!
- A mathematical description is a necessary but insufficient requirement.
- What is the real physical structure that causes physical phenomena?

Approach: Big Questions

- How are Probabilities implemented in Nature?
- What is the Mechanism behind Randomness?
- Solution:
  - Deconstruct,
  - Deconstruct,
  - Deconstruct

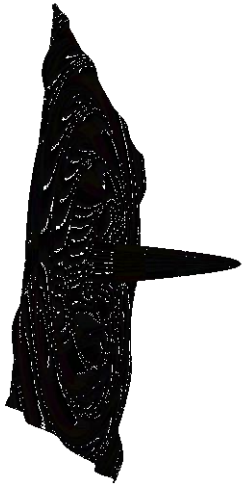
Probability Implementation



- Conservation of electric and magnetic fields
  - Proposed field vectors rotate between spacetime (x, y, z, t) and subspace (x, y, z)

Structure of Randomness

Inference about Particle Properties



- Photons cannot produce random states

- Mass particles can produce random states

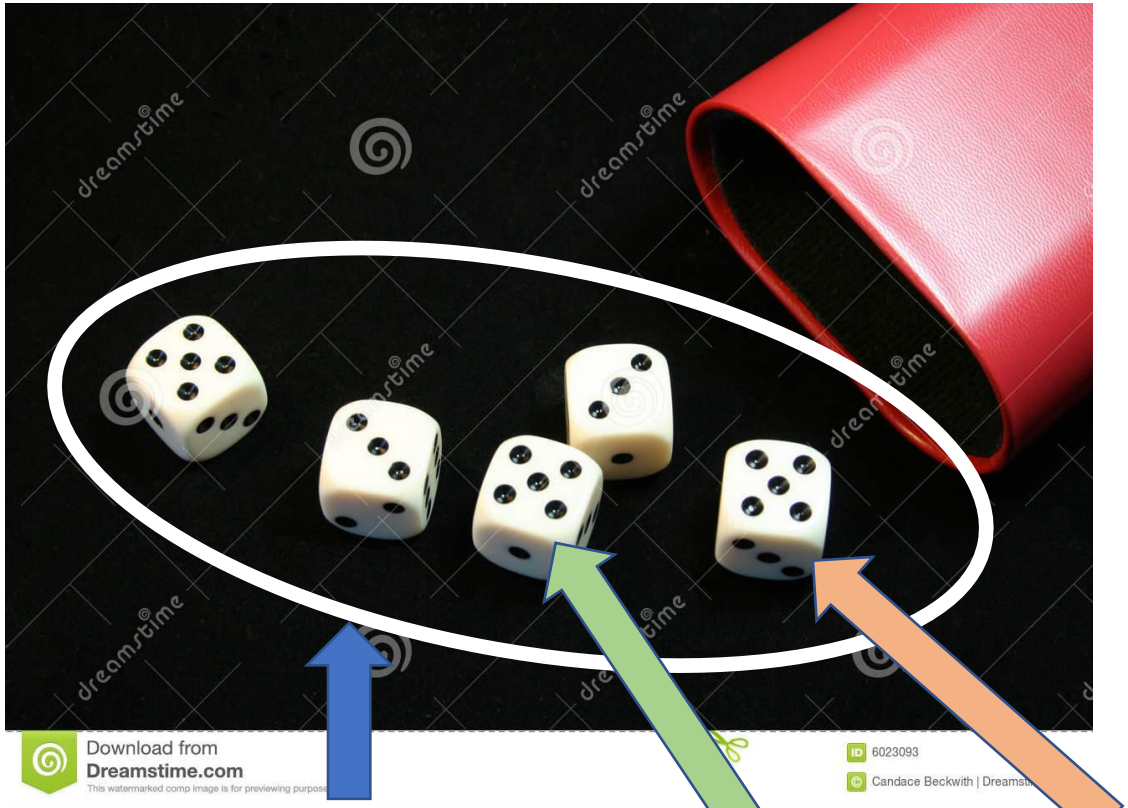
Axiom 1, States η:

- Fundamental state η must have N_η unique values
- For example spin takes ±n½

Axiom 2, Receptacle ρ:

- A receptacle ρ is a fundamental carrier of the states η_i

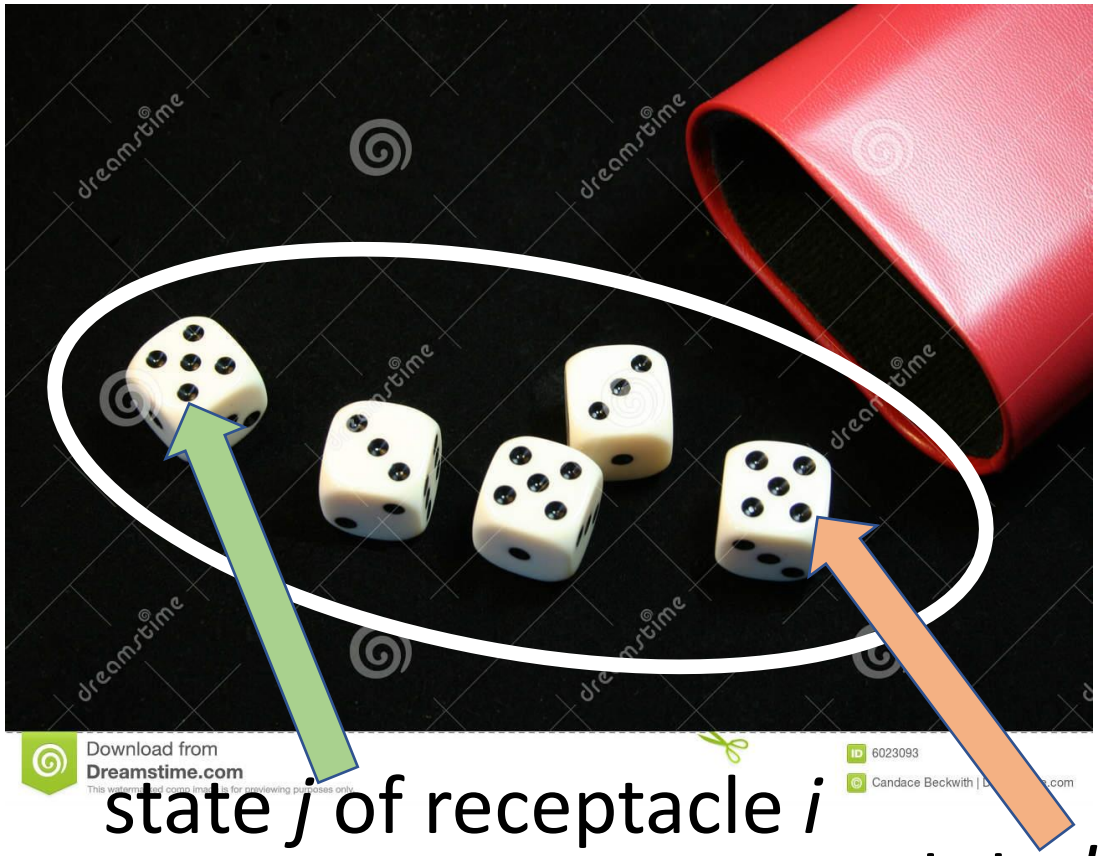
Axiom 3, Collection Σ:



- A collection Σ is a group of N_ρ receptacles ρ_i
  - Example, an electron shell
- Beware of Large Numbers as these mask the underlying distribution of states η_i

collection Σ_m, any state j of receptacle i

Axiom 4, True Internal Independence:



state *j* of receptacle *i*

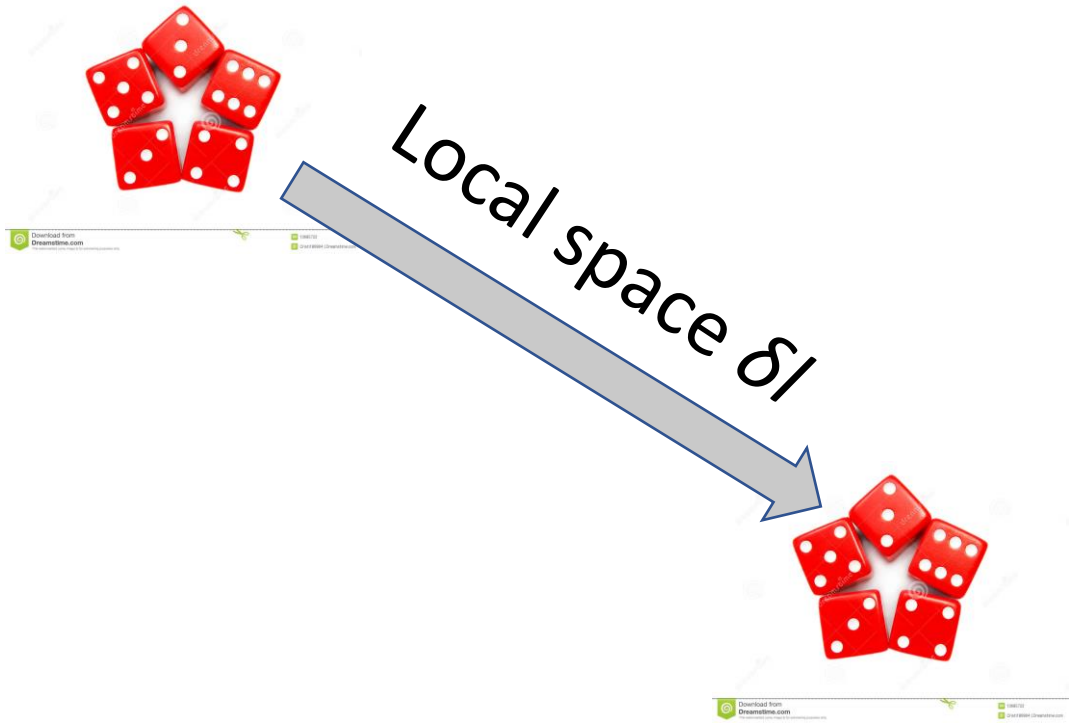
state *l* of receptacle *k*

- True internal independence occurs when, within the same collection Σ_m,
  - Any state *j* of receptacle *i* or state *l* of another receptacle *k* is independent of each other
- Not true in electron shell – Pauli's Exclusion Principle

Axiom 5, Sequence Θ:

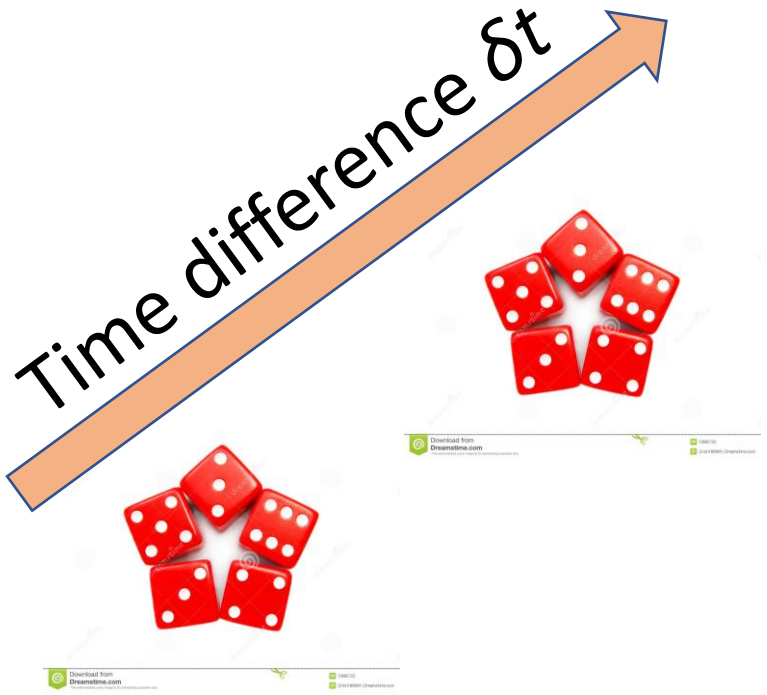
- A sequence *Θ* is a set of states that are associated in space or time.
  - Example, a plane of atoms

Axiom 6, External Spatial Randomness:



- Spatial randomness requires
  - Given a local space δl
  - No correlation between neighboring states η_i
- Example, radioactivity

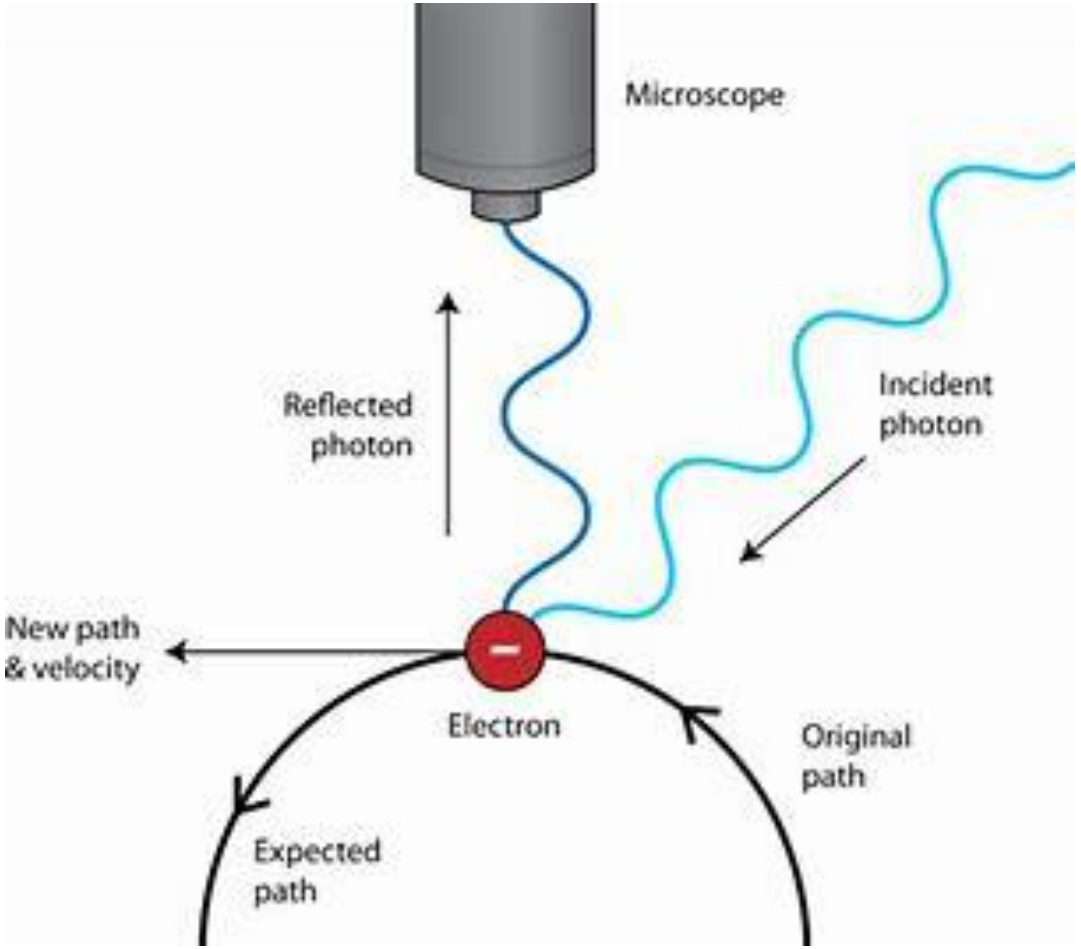
Axiom 7, External Temporal Randomness:



- Temporal randomness
  - Given a time interval δt
  - No correlation between successive states η_i
- Example, radioactivity?

Structure of Interaction

Four Distinct Sources of Phenomena



- Particle Properties
  - Electromagnetic Wave
  - Photon Energy *hv*
  - Probability Field
- Plane Material Properties
  - Localization

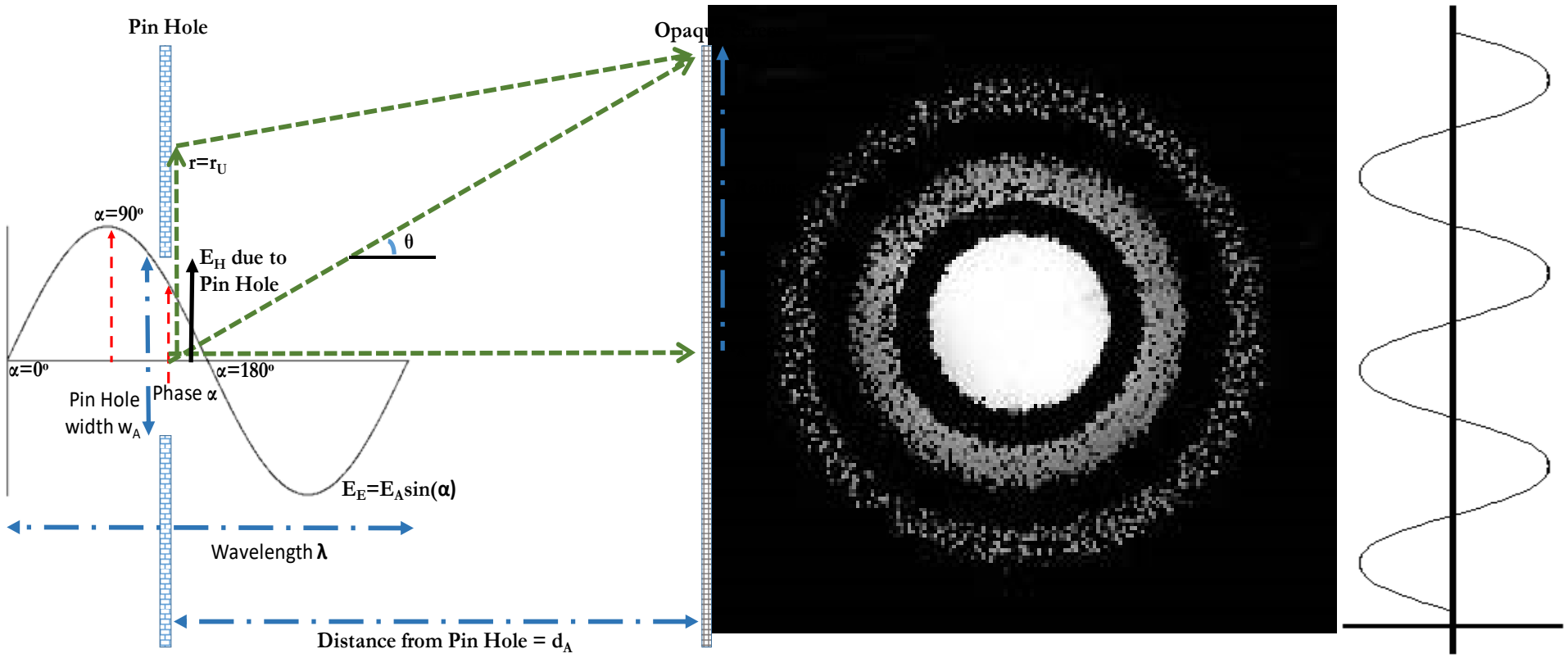
Q: Why does an orthogonally oscillating substrate have momentum?

Spectrum Independence

	≤ r	> r
Pass	Shielding $\Theta_S = 10log\left(\frac{f(P_{\leq R})}{f(P_{\leq r})}\right)$ Tunneling $\Theta_U = 10log\left(\frac{f(P_{\leq r})}{f(P_{\leq R})}\right)$	Wrapping $\Theta_W = 10log\left(\frac{f(P_{>r})}{f(P_{\leq R})}\right)$
Obstruct	Resolution $\Theta_R = 10log\left(\frac{f(P_{\leq r})}{f(P_{\leq R})}\right)$	Invisibility $\Theta_I = 10log\left(\frac{f(P_{\leq R})}{f(P_{>r})}\right)$

- Photon behavior: function of geometric structures
- Electric & magnetic energy store
  - $E_A = \frac{\lambda_P}{4\sqrt{\varepsilon}}$ or $E_A E_P = \frac{hc}{4\sqrt{\varepsilon}}$
- Photon probability field is time invariant
  - $P_N = \left(\sqrt{\frac{hc}{4\sqrt{\varepsilon}E_A}}\right)\frac{ln(E_P)}{r_P} = \left(\sqrt{E_P}\right)\frac{ln(E_P)}{r_P}$ (wave function removed)

Consensus Wave Function Interpretation

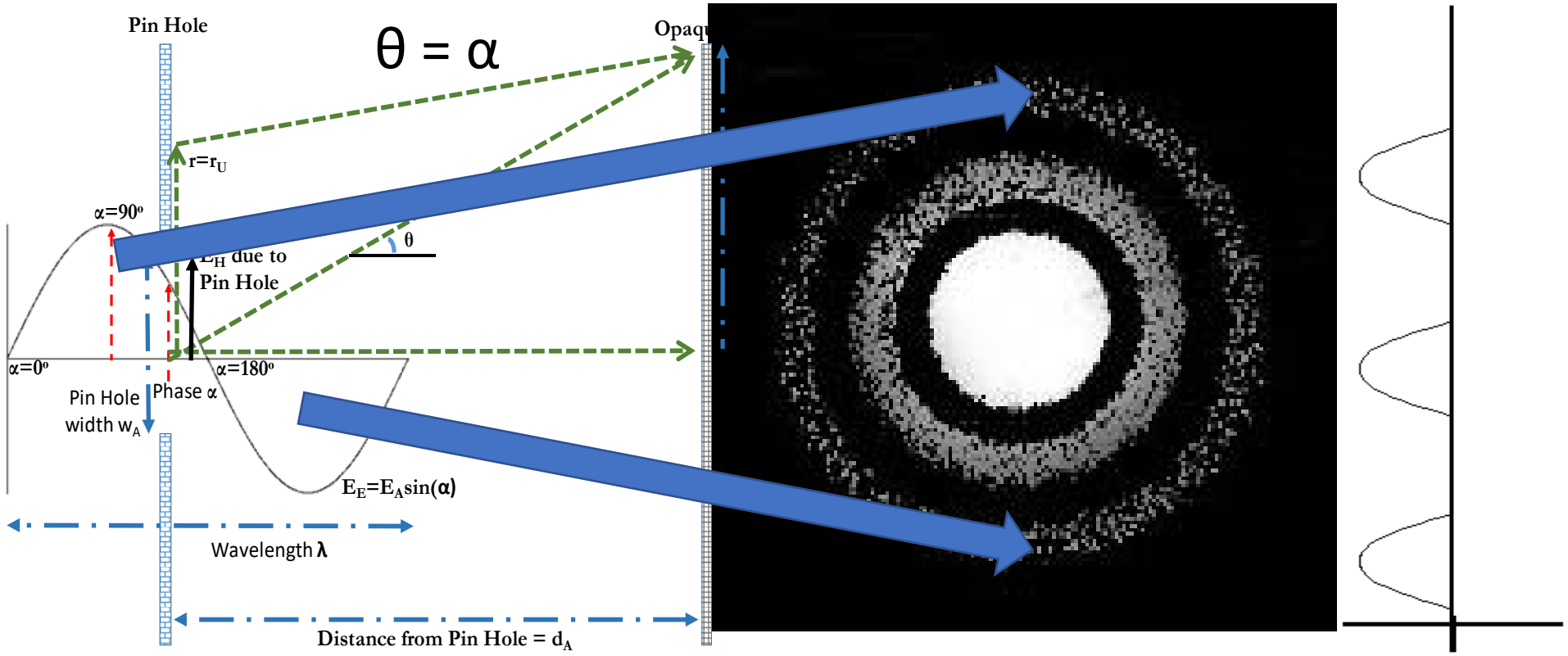


Consensus:
Uniform wave function

But Observe:

- Dark bands do not have any specs
- 2 distinctive phenomena

Probabilistic Wave Function Filtering

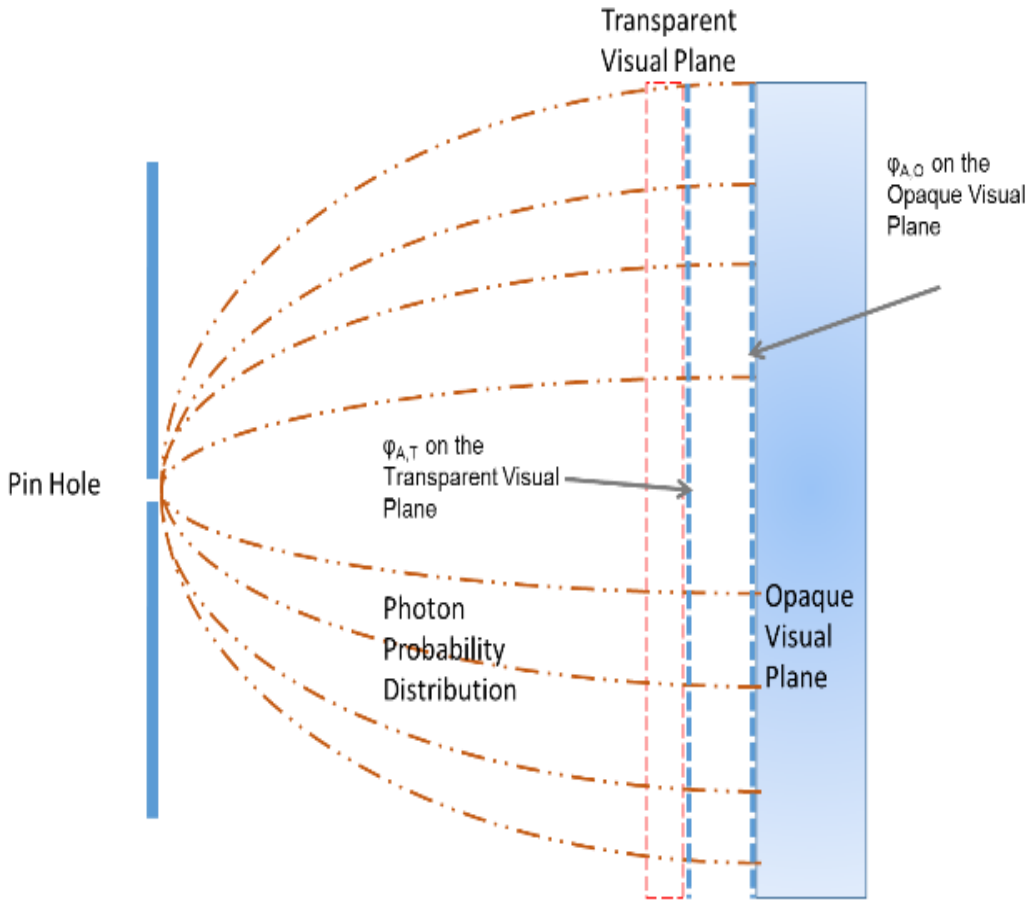


Best Interpretation:
Bottom wave function cut off

Filtering:
- θ = α
- Amplitude sign: +ve/up, -ve/down

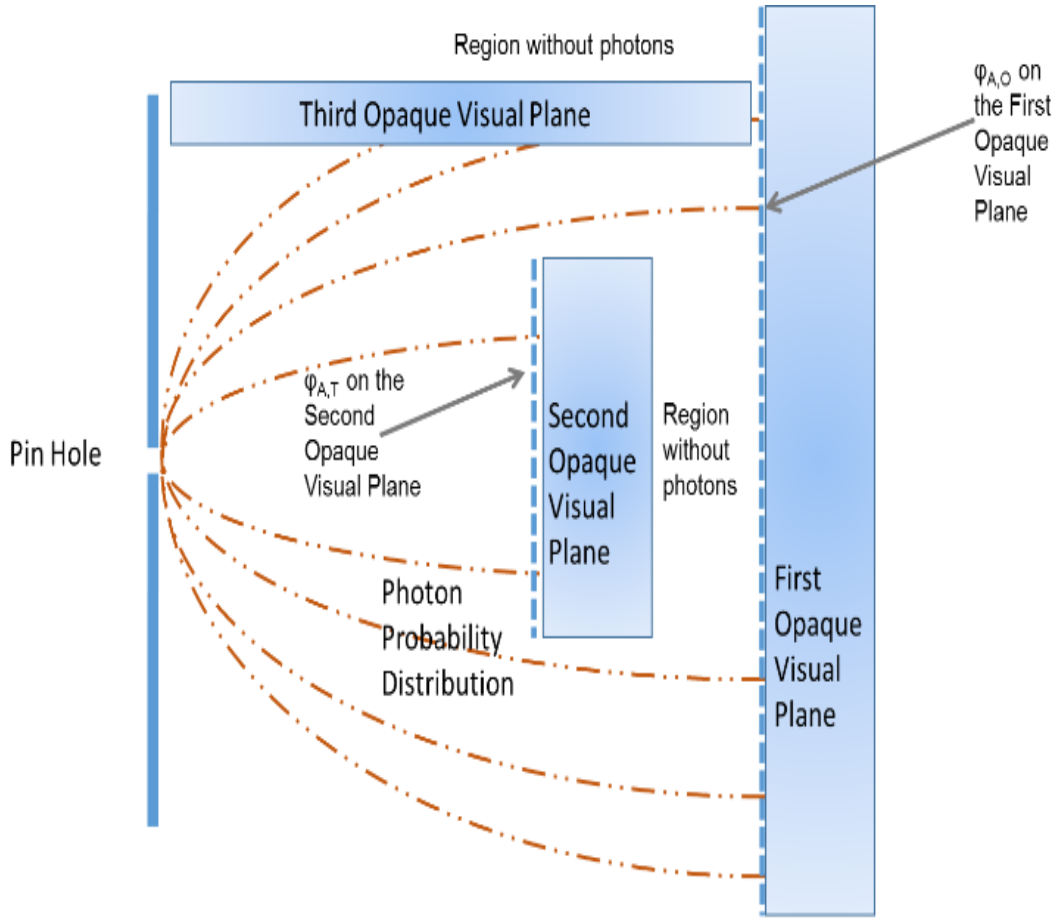
Example: Polarization

Probability Field Exists Before Localization



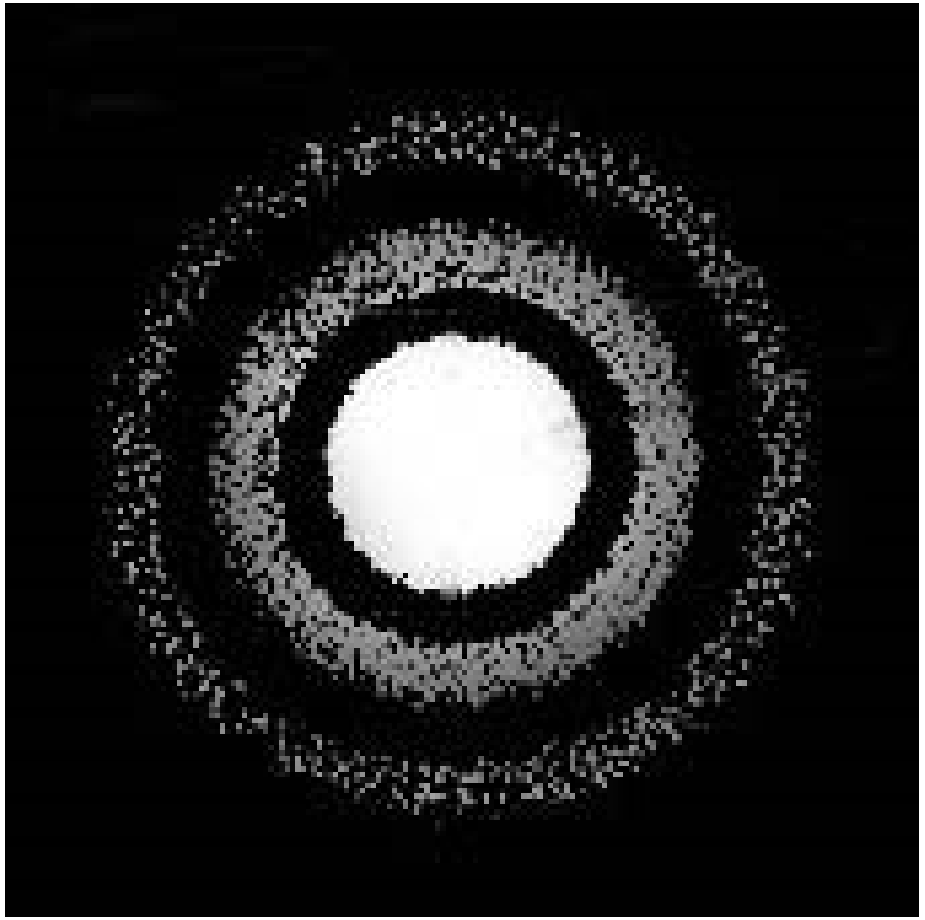
- Probability field is orthogonal to motion vector
- Probability does not come into effect until photon arrival

Electromagnetic Function ≠ Probability



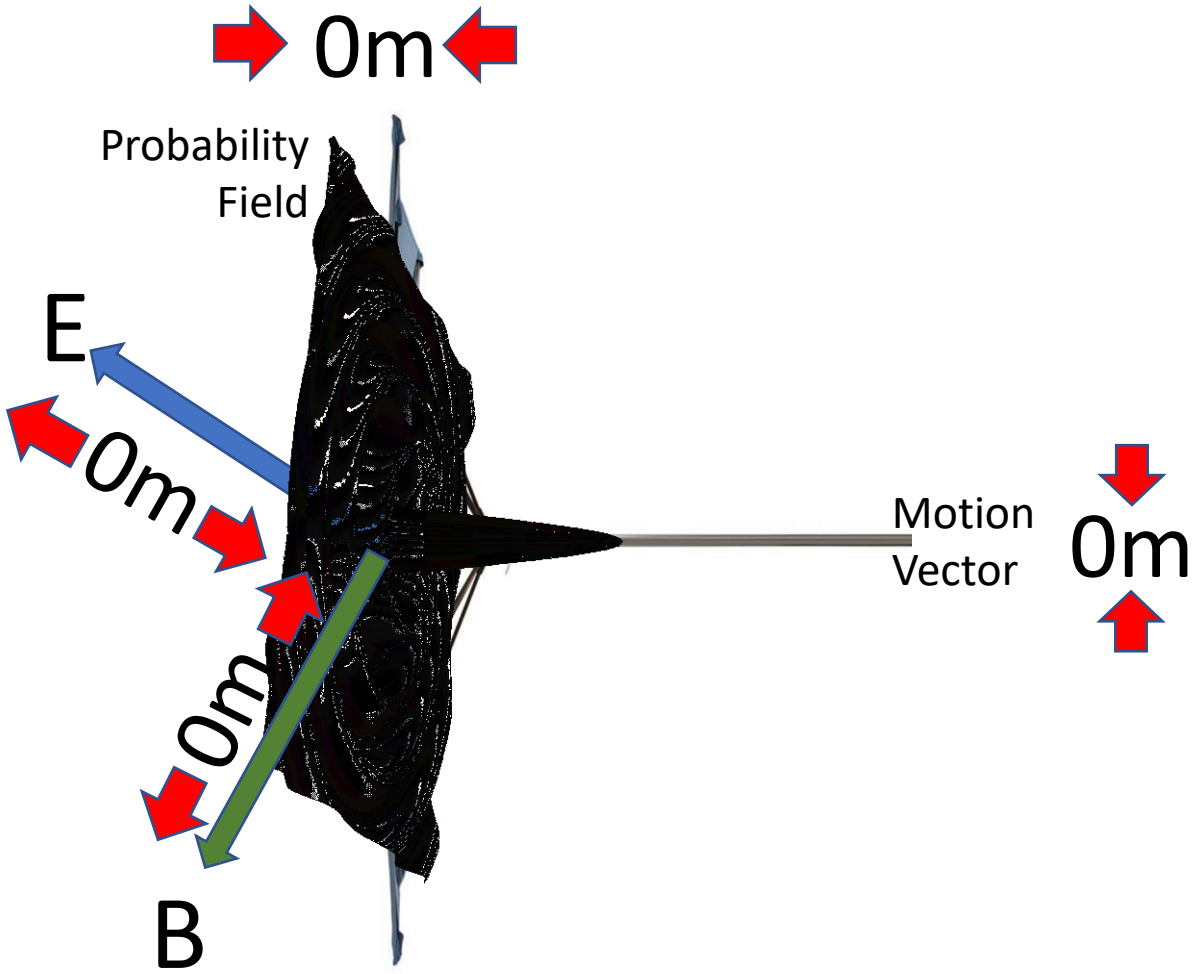
- Independent properties
  - Reflection is electromagnetic
  - Localization is probabilistic
- Localization requires non-reflective interactions
- Electromagnetic ability ≠ probability
  - Can (em) versus Will (probability)

Probability ≠ Localization - It is Not Random



- A trigger (readiness) is required to effect localization
- For an identical set of atoms in the local vicinity,
  - Ready atoms receive photons
  - Not ready atoms will not
- Randomness = Loss of Control

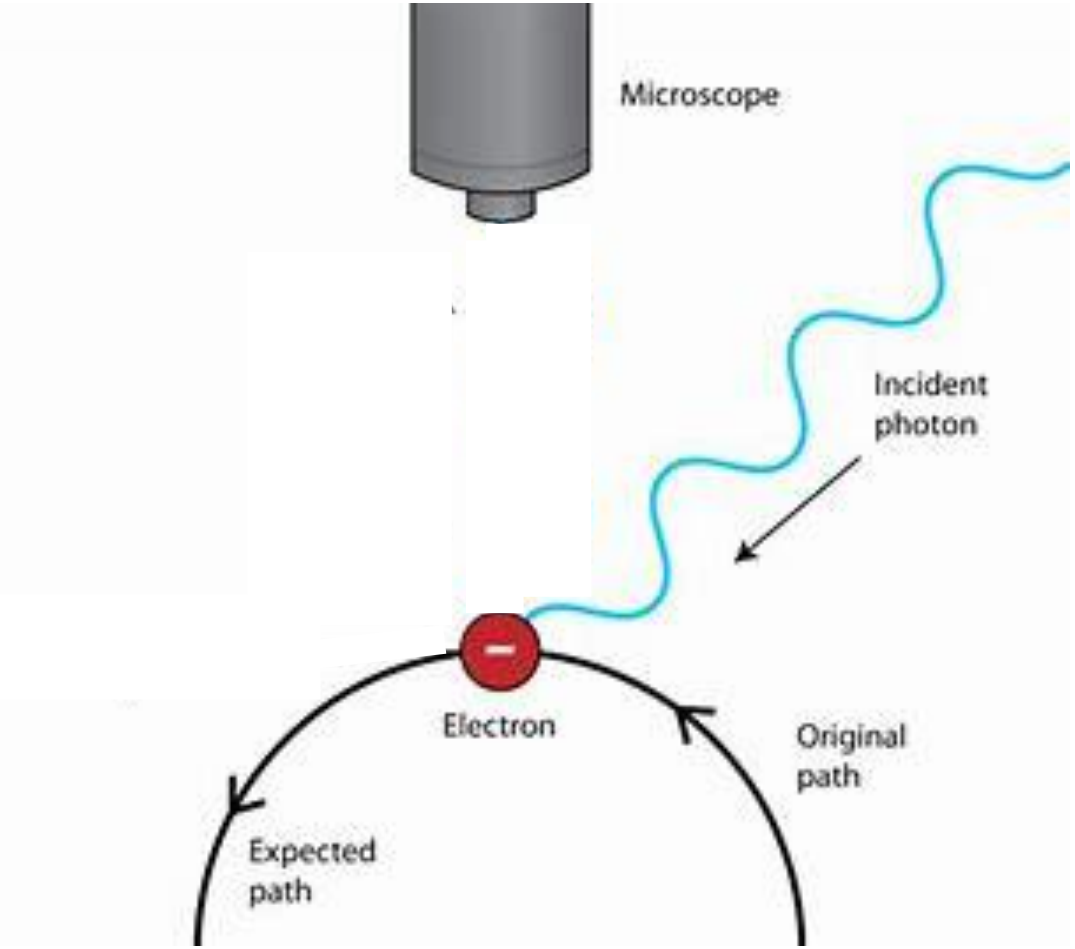
Summary: Photon Structure



- Umbrella shaped basic structure
- Other particle properties are built around this structure

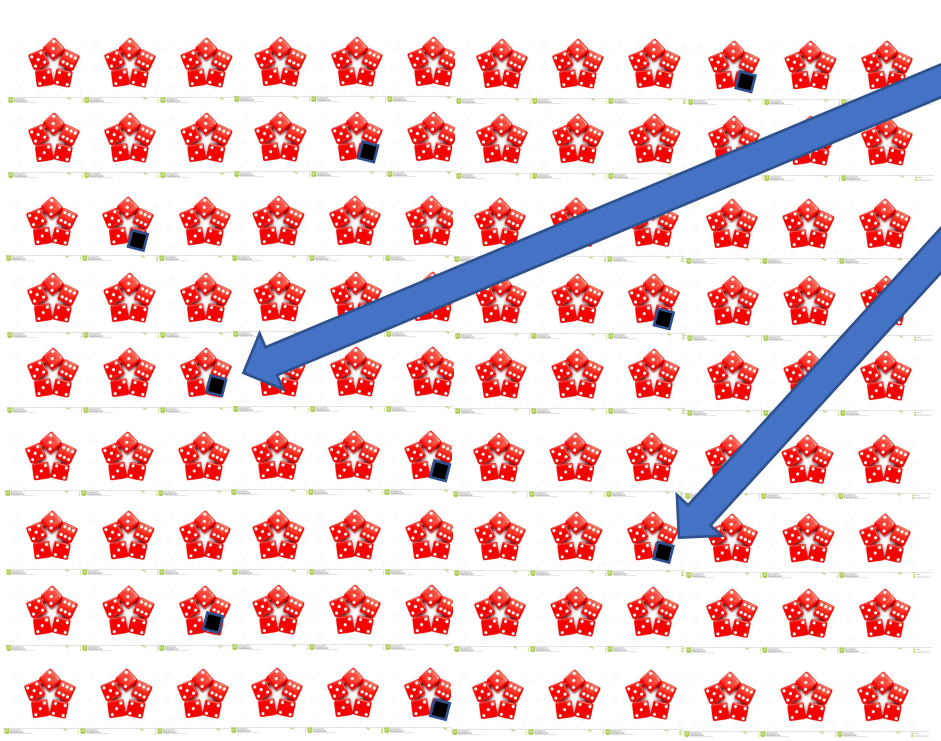
Structure of Localization

Localization Definition



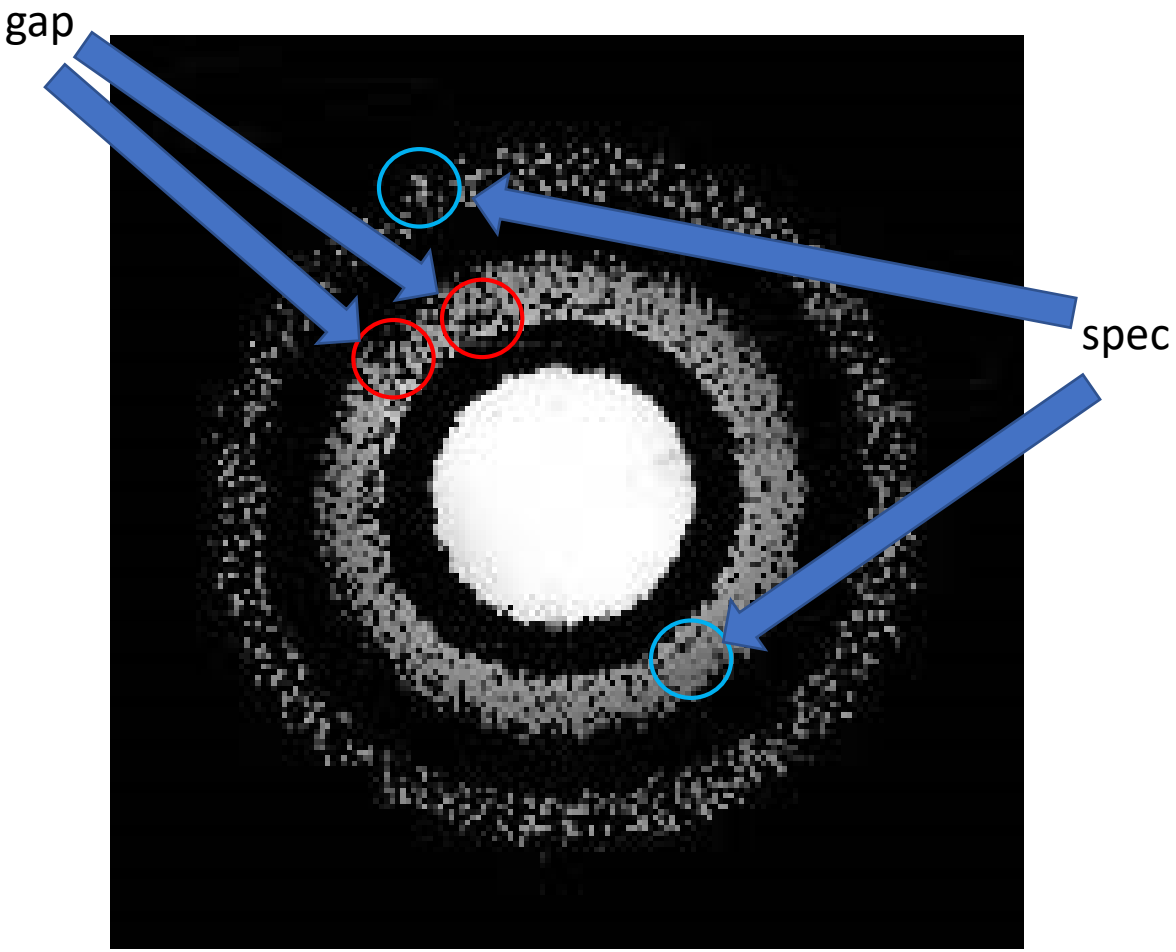
- Electron shell is ready when
  - Spacetime–subspace join exists
- Localization = join + probability field

Uncorrelated neighboring states η_i



- Uncorrelated localization
- Uniformly distributed

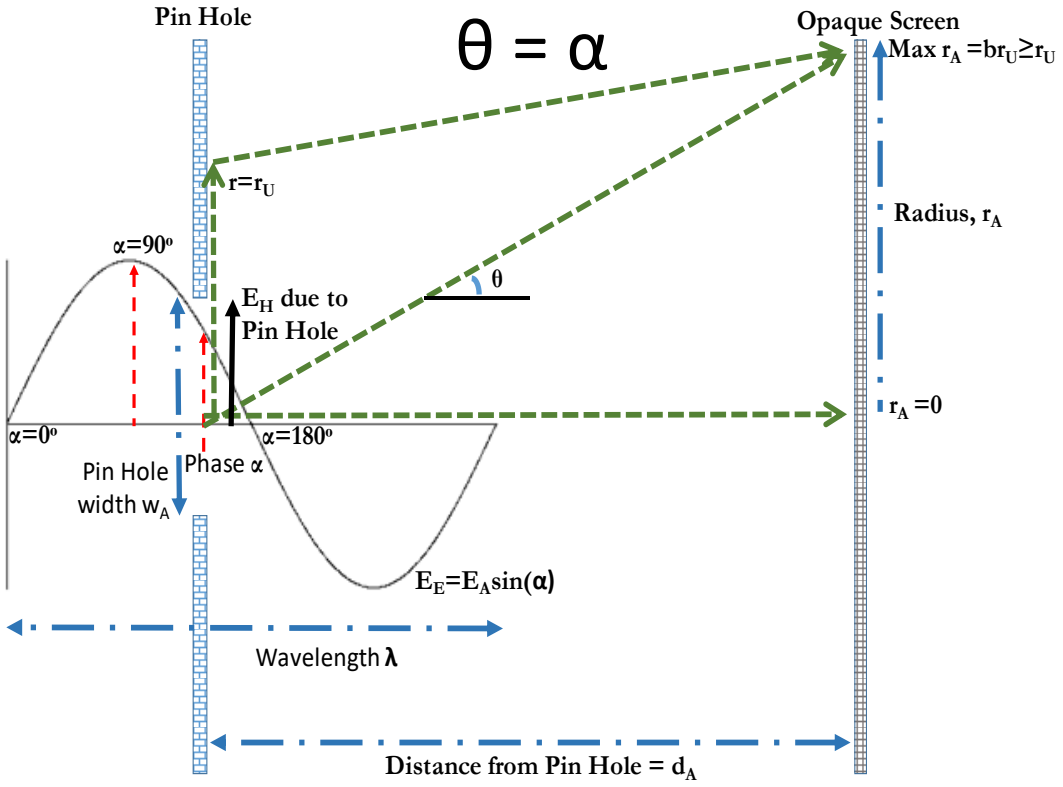
Correlated neighboring states η_i



- Localizations are correlated
  - For a selected ring
  - Specs = multiple localizations
  - Gaps = multiple avoidances
  - Ready/Not Ready are clustered
  - Spatial & temporal(?) randomness not true

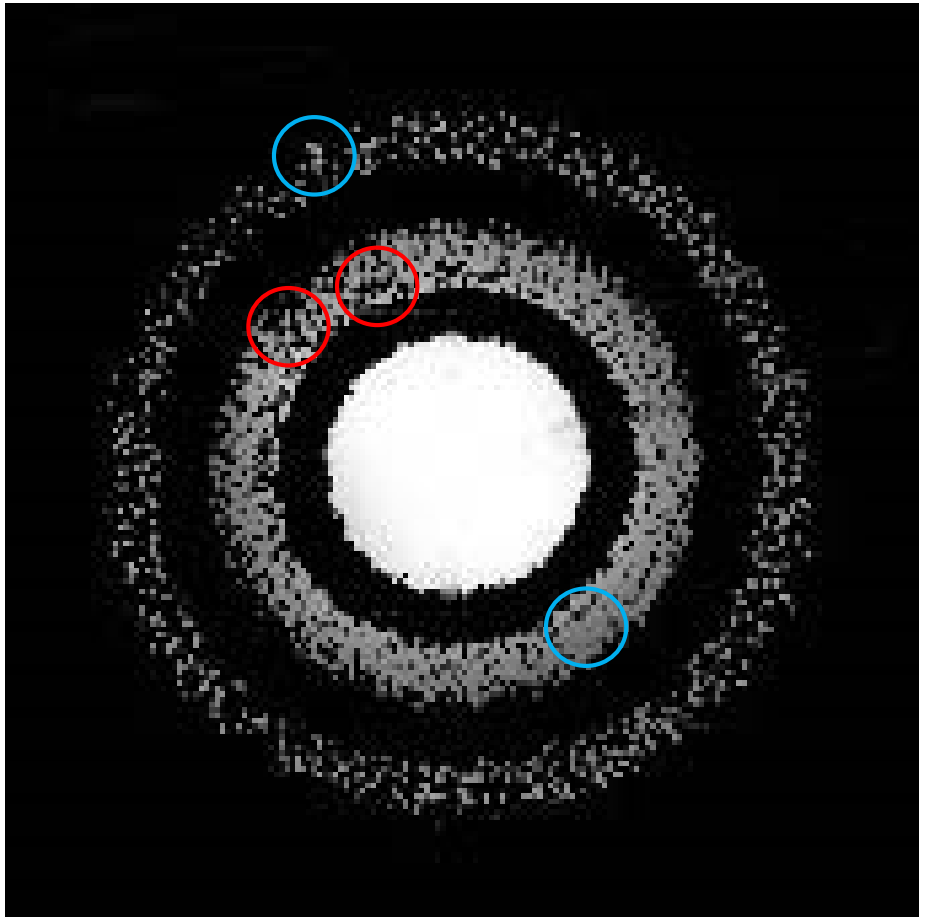
- Source of this correlation?
- Underlying phenomenon?

What is the Correlation Source?



- Aperture design & material
- Screen material

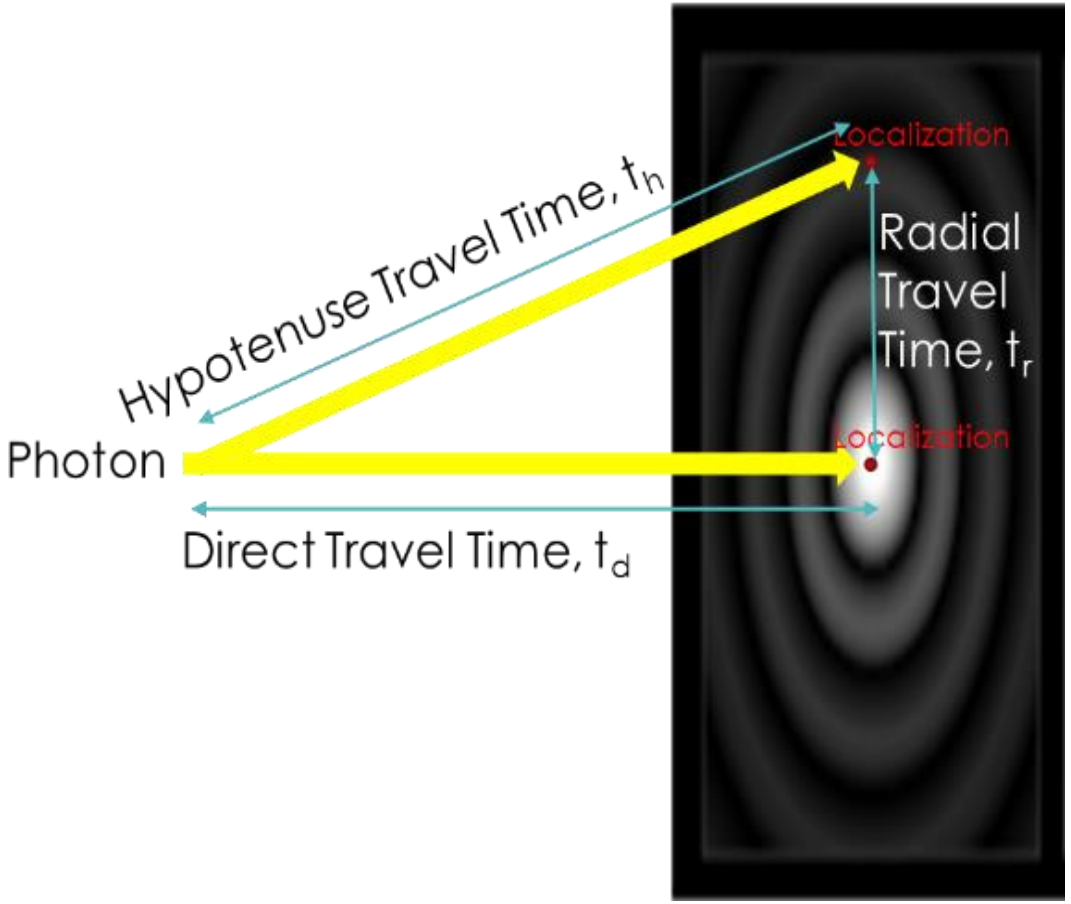
Summary: Matter is Correlated



- Localizations are correlated
  - Both spatial &/or temporal

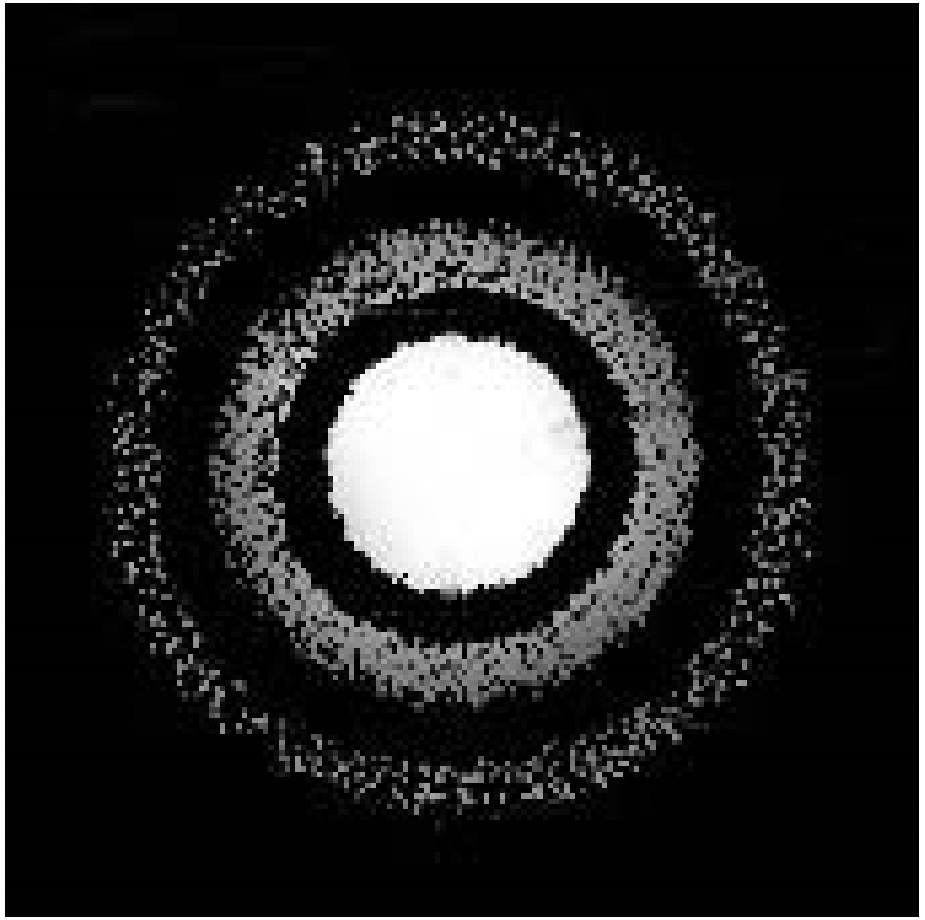
Proposed Experiments

Probability versus Velocity



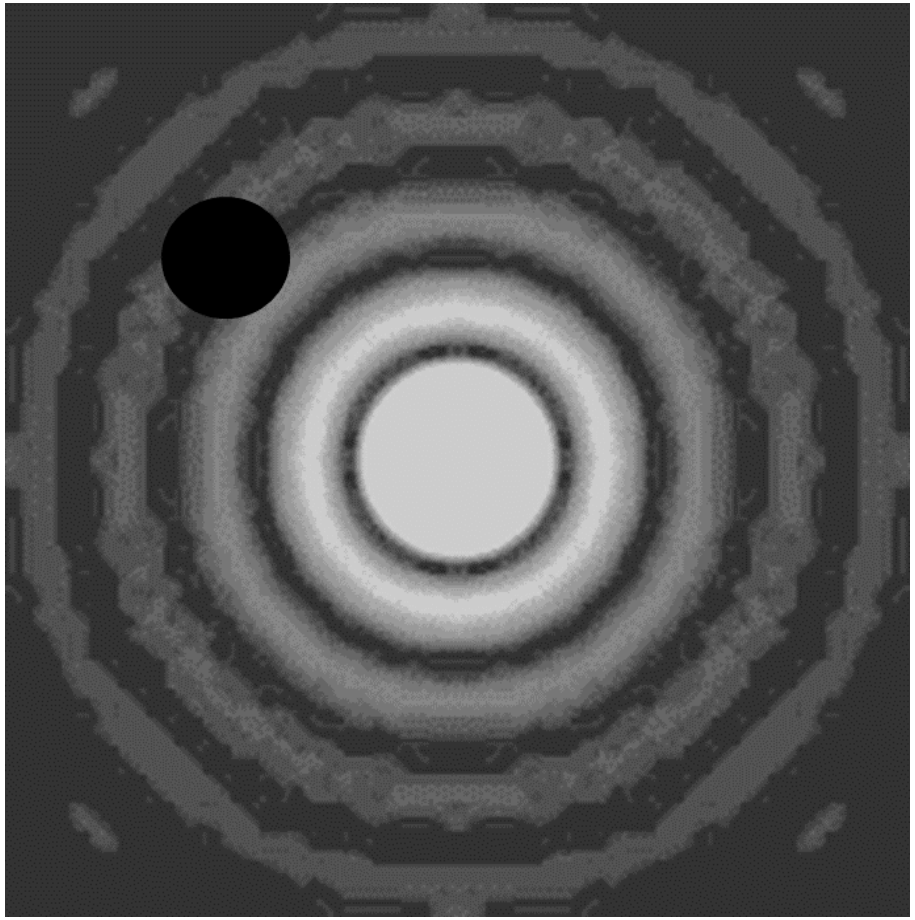
- To prove and control photon probabilities
- Experiment
  - Test Hypothesis: $t_h = t_d$
  - Alternate Hypothesis: $t_h \neq t_d$

Material Response: Measuring Readiness



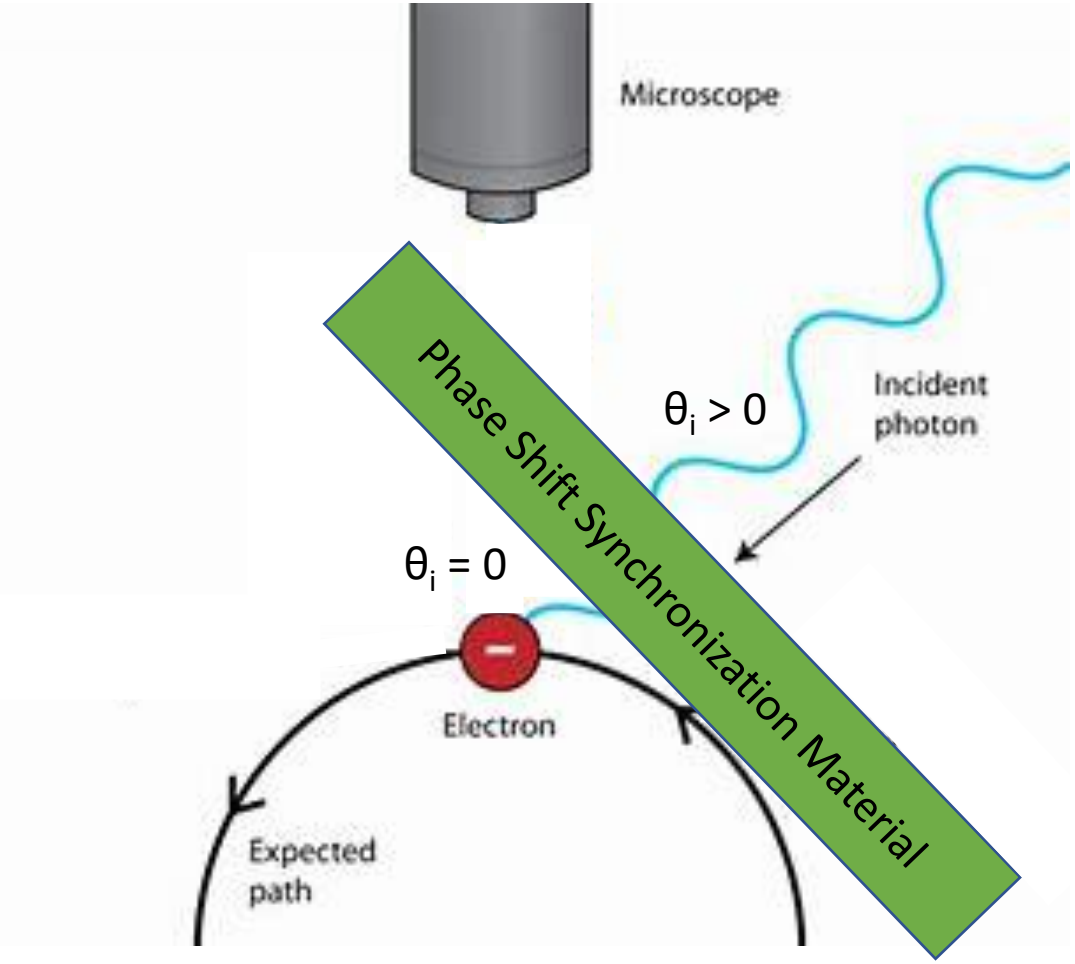
- To make materials that have increased localization rates
- Ready frequency $F_{RN} = r_e$ when r_e just exceeds c_a for N atoms per unit time
  - Increase rate r_e of photon emission
  - Count photon arrivals c_a
  - Ready frequency $F_R = r_e / N$ per atom
  - Detection loss occurs when $F_{RN} < r_e$

Material Response: Non-Random Localization



- To significantly improve localization in one spot
  - By increasing the join rate
  - Without altering photon probability
  - Without using the electromagnetic properties
- Use reflecting substrate to eliminate the electromagnetic function at substrate
- Material correlated randomness, shows that this is possible

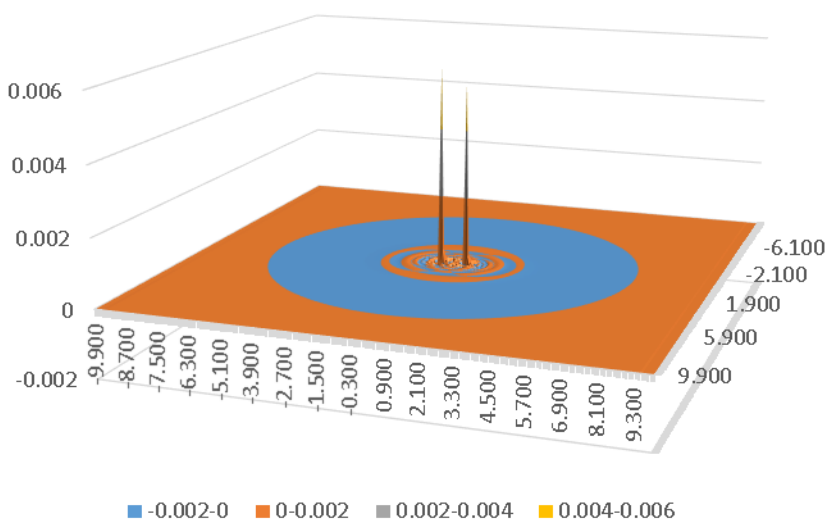
Photon Response: Phase Shift Photon



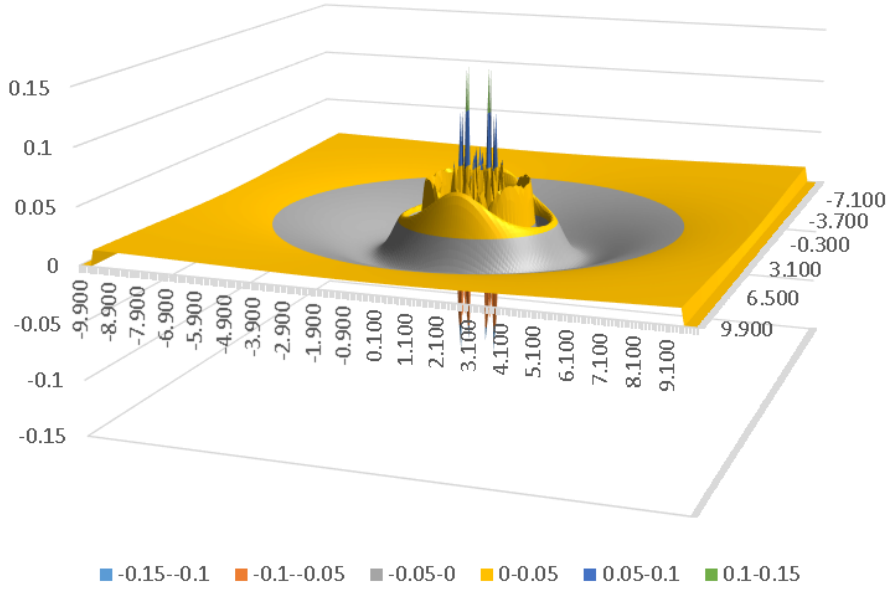
- To increase probability of localization
- Experiment: Alter photon's phase shift
  - Max localization $\theta = 0$
  - Or $\theta_i = 0$ for all $\theta_i > 0$

Entanglement Experiment

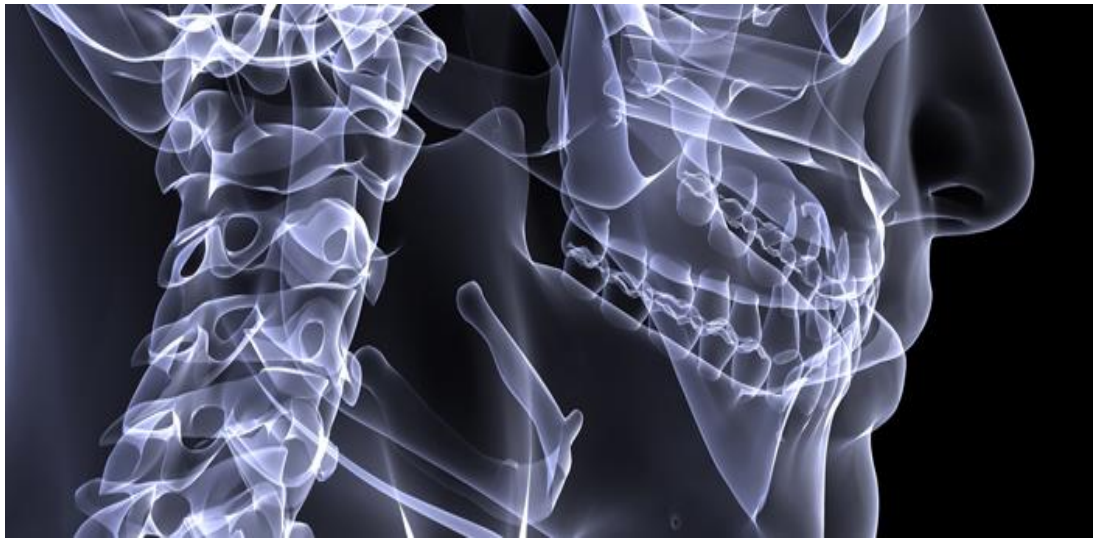
Joint Probability Effect



Subspace Probability Effect



Conclusion



- Probability & Randomness are two different phenomena
- Can infer particle structure
- Provided alternative avenues for further research

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- Paper References:
  - http://www.iseti.us/pdf/PaperReference.pdf