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A unification of matter and light

Newton characterized light as corpuscles. But his corpuscular theory was proven wrong when, in 1850, Foucault established that light moves slower in water than in air. Thereafter, wave theory of light supported by Thomas Young's 1801 double-slit interference experiment took the lead and was never called into serious question till the current decade when it failed to explain double slit interference pattern with photons passing through one slit at a time and not both slits simultaneously. Almost concurrent to this failing, came another failing of contemporary Physics when it was established that wave-particle duality due to de Broglie is incorrect. Amid this failing of wave theories, one for light and one for matter particle, what came to prominence is a similarity between two diffraction patterns, one with X-ray light and the other with high-velocity electrons. This delicate similarity points us to a common thread which is recently found a new fundamental entity of Nature, named Natural Field [1]. This new field distinguishes itself from existing four fundamentals, namely, Gravitation, Coulomb, Strong and Weak forces in its ability to cause self-interference. It explains diffraction patterns due to matter particles such as moving electrons or neutrons, and Braggs' diffraction as well, upon considering X-ray light as a stream of corpuscles of energy. Since the conception of the law of reflection of light, over last two thousand years, we remained unable to derive this law starting from the root cause. Natural field proves itself to be the root cause. Laws of optics, such as reflection, refraction, interference, and diffraction, and Davisson-Germer's results on electron diffraction all directly follow from Natural Field theory which avoids shortcoming of Newton's corpuscular theory while incorporates the attribute of Thomas Young. It exhibits characteristics common to both light and matter particle and provides a unification of matter and light.

Biography

Debabrata Saha is a research scientist who recently completed a teaching assignment in NIT, Karnataka, India as an Adjunct Professor. Before this, he taught for twenty-one years as a tenured member of a faculty, and, thereafter, worked as President of a consulting firm, both in the USA. He is a former Chairman of Washington D.C. – Northern Virginia Section of IEEE Information Theory Society, USA. His academic background includes earned degrees in (1) Science – B.Sc., Physics (Calcutta University),(2) Technology – B.Tech., Electronics (Calcutta University), (3) Applied Science – M.A.Sc., Communication (University of Toronto), (4) Engineering – PhD, Computer, Information and Control Engineering (University of Michigan).

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