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Louis de Broglie's "Double Solution Theory" a program more than a theory

Already in 1924 L. de Broglie's idea of wave-particle dualism was that these two objects were both objective, material, elements of reality, But in view of the mathematical difficulties he renounced to pursue this idea after the 1927 Solvay conference and devoted his work to Dirac equation and its extension to higher spin particles, in particular the photon (his "fusion" theory).

Unsatisfied by the purely probabilistic interpretation he came back in 1952 to his former approach and developed what he called the "double solution theory" describing the necessary properties of the association of a physical wave (whose non-linear equation is still to be found) and the probability wave of quantum mechanics. A brief account of his results and those of his followers up to the 70s will be given.