



Louis de Broglie's discovery of matter waves

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Abstract

Wave properties of matter were completely unheard of when, in the fall of 1923, Louis de Broglie predicted their existence in a series of three notes in the Comptes rendus of the French Academy of Science. Coming from a young theorist heretofore dedicated to applications of received quantum theory, this innovation was a case of extreme audacity. Yet, after closely analyzing de Broglie's itinerary, we can identify multiple resources and ways of reasoning that help us to understand the steps he took toward his stunning proposal.