

## Journées Louis de Broglie 2023

### 100 years of matter waves

### Three-day conference in Paris, July 2023

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To round off these rich days, which have offered us the opportunity to hear papers that bear witness to the intensity of the research in pursuit of Louis de Broglie's ideas, I wanted to devote a few minutes to the great scientist whose name grace these days.

Born into an aristocratic family whose motto included faith in the future, and whose life intended a complete obligation to serve, Louis de Broglie enjoyed a happy childhood, studying history at university, with little indicating a path destined for a career in science.

It was through contact with his brother, Maurice de Broglie, first a student at the Ecole Navale, a naval officer, and then a physicist – a giant of a scientist specializing in x-rays, who worked in his laboratories on the Rue Balzac, that the younger brother discovered science and gave up more traditional studies to embark on scientific ones. Maurice was a wonderfully intelligent and benevolent teacher. He took it to heart to initiate his younger brother (17 years his junior) and took him to the Solvay Congress in Brussels in 1911 which was to be a fundamental step in his education as the greatest scientists of the time were there.

Louis spent the war posted at the Eiffel Tower, which gave him the opportunity to do some work, and later moved to a small house in Neuilly, which became a place of concentration, a laboratory of the mind.

He would leave this house only for rare trips, notably to Stockholm to receive the Nobel Prize in 1929, for the daily walks that nourished his thoughts, for his lectures at the Sorbonne and his duties at the Académie des Sciences (where he was perpetual secretary) and the Académie française.

The rest of his time was spent in work, reflection, concentrated thought and exchange with the small group of his faithful pupils.

In the 1920s, his ideas formed themselves. Starting from his initial intuition, his cornerstone, he pushed to develop his ideas in the manner of the great mystics.

He wrote them in the three famous papers given to the Académie des Sciences in 1923 that we celebrate today, and then in his thesis of 1924. Rare are the minds that touch the unreachable, succeeding in raising themselves to the highest level of knowledge, to an altitude that very few manage to attain.

He is the pioneer, the first to discover a world whose importance he senses, which he explores with incredible sharpness, and which he finally reveals.

This was the birth of wave mechanics and an entirely new vision of quantum mechanics. It was a veritable conceptual scientific revolution in the first half of the 20th century. "He has lifted a corner of the great veil," wrote Albert Einstein in a famous letter. Suddenly he'll be famous, very famous.

But Louis de Broglie will not become vain, nor make any publicity.

In today's noisy, chattering world, where communication provokes echoes that often overblow the modest realities, Louis de Broglie offers a unique example of a "romantic" figure - a prince (but of science!) - a duke (but of intelligence!) focused on fundamental research and work, work and more work.

He was not spared from doubt, which came to trouble him, but never wavering he reapplied himself to the task of verifying his work.

Attentive to others, ambivalent to quarrels and the mediocrity of ambitions or careers, he marched towards his truth without wavering.

The figure of Louis de Broglie, and his highly original career, cannot be forgotten. His discoveries made him famous, but fame is fleeting, and few are those who are content in its shadow. But not him. A man of iron, a soldier-monk, a figure who cannot be cast aside, an example to those who will find in his person and in his ideas a source of inspiration and strength.

The Fondation Louis de Broglie is committed to this mission, through its own research and publishing activities, and its desire to raise awareness of this great scientist and his work. The foundation is not alone but

also with new generations of scientists whose work is notably on display during these days.

May everyone please be aware of our deepest gratitude.

It's a great joy for us to imagine Louis de Broglie, with his broken collar, his fine moustache, his head slightly tilted and bearing a faint smile, silently enjoying our work.

“For the future” was his family's motto, and he shares it with us all.