

## London, Fritz Wolfgang <sup>[1]</sup>

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## London, Fritz Wolfgang

by Mark C. Stauter, 1991

**7 Mar. 1900–30 Mar. 1954**

Fritz Wolfgang London, physicist and theoretical chemist, was born in Breslau, Germany (now Wrocław, Poland), the son of Franz and Luise Hamburger London. In 1904 his father, a professor of mathematics, accepted a position at the University of Bonn, where Fritz London spent his formative years. After a classical secondary education, he studied physics, mathematics, and philosophy at the universities of Bonn, Frankfurt, and Munich. In 1921 London submitted a treatise to his philosophy professor for his information and criticism. Unexpectedly, this work became the dissertation for his Ph. D. in philosophy from the University of Munich. But London's scholarly interests soon changed from philosophy to theoretical science. In 1927, with Walter Heitler, he formulated a seminal study in quantum chemistry concerning homoeopolar bonding which came to be known as the Heitler-London Theory. In 1937 he received a Ph. D. in physics from the University of Paris.

Of Jewish background, London left Nazi Germany in 1933 and moved to Oxford, England. There, in collaboration with his equally gifted brother, Heinz, the London equations of superconductivity were established in 1935. This led to a lifelong investigation of the peculiar phenomena, associated with extremely low temperatures, known as superconductivity and superfluidity. Fritz London held appointments at [Oxford University](#) <sup>[2]</sup> and the Institut Henri Poincaré (University of Paris) before accepting in 1939 a position as professor of theoretical chemistry at [Duke University in Durham](#) <sup>[3]</sup>, <sup>[4]</sup>

At Duke London continued his investigation of the effects of low temperature, concentrating on the existence of strong diamagnetism and the behavior of liquid helium. This work culminated in the publication of *Superfluids* in two volumes: *Mascroscopic Theory of Superconductivity* (1950) and *Macroscopic Theory of Superfluid Helium* (1954). These studies are landmarks in modern low-temperature physics.

In 1953 London was named James B. Duke Professor of Chemical Physics at Duke. The same year the Royal Dutch Academy of Sciences awarded him the prestigious Lorentz Medal in recognition of his scientific achievements; he was the first American citizen, and the first person serving an American institution, to be so honored. At the time of his premature death, he was considered to be a leading candidate for a [Nobel Prize](#) <sup>[5]</sup>. He is memorialized by the annual Fritz London Memorial Lecture at Duke University and by the biannual international Fritz London Award in low-temperature physics.

In 1929, in Berlin, London married Edith Caspary, an artist; they had two children: Francis Michael and Rose Louise. Following his death from a heart ailment, London was buried in Maplewood Cemetery, Durham.

### References:

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Fritz London, *Superfluids*, 2d ed. (1961).

[Fritz London Papers \(Duke University Archives, Durham\)](#). <sup>[6]</sup>

### Additional Resources:

"Fritz London," Duke University Department of Physics, <http://www.phy.duke.edu/fritz-london> <sup>[7]</sup> (accessed January 13, 2014).

Publications by Fritz Wolfgang London from Worlcat (searches multiple library catalogs). [https://www.worldcat.org/search?qt=worldcat\\_org\\_all&q=london%2C+fritz](https://www.worldcat.org/search?qt=worldcat_org_all&q=london%2C+fritz) <sup>[8]</sup> (accessed January 13, 2014).

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**Authors:**

Stauter, Mark C. <sup>[14]</sup>

**Origin - location:**

Durham <sup>[15]</sup>

Duke University <sup>[16]</sup>

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