

## Max von Laue



### Biography

Max von Laue was born in Pfaffendorf near Koblenz on October 9th 1879. In 1898 he finished high school in Strasbourg. Between 1898 and 1899 he did his military service which allowed him to attend lectures given by Ferdinand Braun in Strasbourg. Between 1899 and 1902 he continued his studies in Göttingen and Munich with Wilhelm Conrad Röntgen. In 1902 he went to Max Planck in Berlin, with whom he finished his studies and did his Ph.D. in 1904. In 1906 he did his habilitation with a thesis "On the thermodynamics of interference phenomena". Between 1909 and 1912 Laue worked as a senior academic assistant at the Department of Theoretical Physics with professor Sommerfeld. In 1914 he accepted a professorship for physics at the University of Frankfurt/Main.

That year Max von Laue received the Nobel Prize in Physics "for his discovery of the diffraction of x-rays by crystals".

Between 1916 and 1918 Max von Laue was given time off from his teaching for working on amplifier tubes with Wilhelm Wien at the Department of Physics in Würzburg.

In 1923 he became head of the Department of Theoretical Physics in Frankfurt.

After Hitler's rise to power, Laue was engaged in helping threatened scientist and after 1945 he contributed to reestablishing German scientific activity. In 1951 Laue became head of the Fritz-Haber-Institute for chemistry and electrochemistry in Berlin-Dahlem.

Max von Laue died after a car accident in Berlin on April 24th 1960.

### Research/Nobel Prize

17 years had passed since the discovery of x-rays. The nature of these rays was still unclear. Why did they come through non-transparent materials, even through the human body? Animated by a question of a student about light diffraction, the young professor Laue started thinking: If x-rays are very short electromagnetic waves and the atoms of a crystal are arranged in an orderly repeating pattern, there must be diffraction patterns when exposing a crystal to x-rays. He came up with a way to test his idea. The experiment confirmed his theory! Two fundamental questions of physics had been solved: x-rays are very short transverse electromagnetic waves and in a crystal atoms are arranged in an orderly repeating pattern. This pattern can be analyzed with x-ray diffraction. This technique contributed to a considerable step forward in the fields of chemistry and biochemistry.

### Working and living in Würzburg

During the first world war Laue was given some time off from his teaching in Frankfurt. He was transferred to the Department of Physics to work on radiotelegraphy together with Wilhelm Wien, which was rated important to the war. Until 1920 Max von Laue owned an apartment in 'Mergentheimer Straße 40'. His daughter Hildegard was born in Würzburg, too.