



# Lev Landau

1908-1968

Awarded the Nobel Prize for Physics in 1962

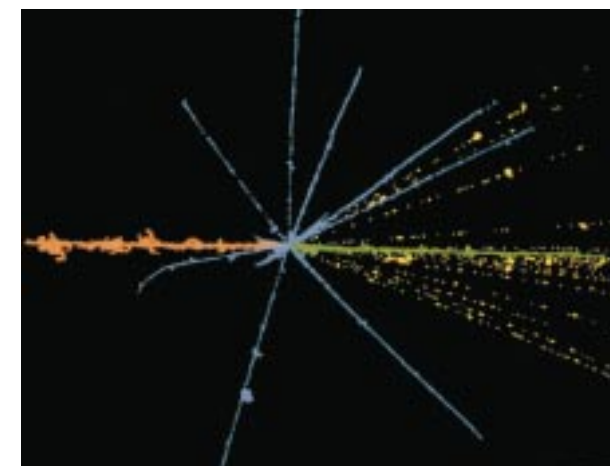
Lev Davidovich Landau (also known as Dau), a prominent Russian scientist, was one of the finest theoretical physicists of the 20th century. He was remarkable for the breadth of his erudition and his ability to move with ease between various branches of physics.

In 1932, following the discovery of the neutron (the uncharged 'elementary' particle), he proposed the existence of neutron stars: stars which collapse into extremely dense structures consisting mostly of neutrons. **He published his work on a new theory of superconductivity and a theory of multiple production of particles in the nuclear collisions.**

However, his most important contribution, for which he was awarded the Nobel Prize for Physics in 1962, was to develop the theoretical understanding of the properties of helium: liquefying at 4.2 K, helium-4 becomes superfluid below 2.2 K as though it has no viscosity at all and exhibits an extremely high thermal conductivity. Landau's theory predicted that sound would travel in superfluid helium-3 as both pressure and heat waves. These properties had been proved experimentally. Landau published (together with E. Lifshitz) a famous course of theoretical physics.

Lev Landau was born in Baku (former Russia) into the family of a petroleum engineer. His mother, an educated woman, became a physician. Landau finished school at the age of thirteen. In 1922 he enrolled in the University of Baku in the faculties of mathematics, physics and chemistry.

At the age of 24 Landau founded his own school of theoretical physics. He became a Professor at the age of 27. In 1929 - 1933 he visited Western Europe, the heartland of the new physics. There he met the world's best theoretical physicists. Landau was far from daunted and proved himself a match for the greatest minds. He spent several months in Niels Bohr's laboratory; Bohr considered Dau as one of his best pupils.



*He introduced the idea of 'multiple production' of particles in cosmic ray collisions.*

Characteristic of him then and throughout his life was his extraordinary critical sense and his complete independence of thought. If he did not like somebody he saw no reason to hide it. Apparently that was why he was arrested and spent a year in prison during Stalin's regime.

He was tall and rather thin with clever dark eyes and dark curly hair. He was married and had a son but family life did not prevent him falling in love with other pretty women. He was only sorry that he had been born so late: 'All the nice girls have been snapped up and married, and all the nice problems have been solved'. Dau was such an unusual person that people told many stories about him. Once, at a lecture of the famous physicist Dirac, whom Dau respected very much, but did not always agree with, he repeated quietly: 'You are an idiot, you are an idiot'. Dirac finished his lecture, and turned to Dau saying in good Russian: 'You are an idiot yourself', and everybody began to laugh.

**Landau's career was brought to a tragic end: in 1962 he was involved in a car crash.** For six weeks the doctors struggled to save his life. He survived but was so badly injured that he never worked again and died six years later.

Landau received many honours and prizes in his country and abroad. He was a member of the Russian Academy of Sciences and a foreign member of many other academies.

S.E.



*Bohr's only way to 'get a word in' was to gag Landau !*

*( After George Gamow )*