



Gustav Robert Kirchhoff

1824-1887

Ohm's Law is fundamental to electric circuits, but to analyze even the simplest circuit requires two additional laws formulated in 1847 by the German physicist Gustav Robert Kirchhoff. These laws – Kirchhoff's current law and Kirchhoff's voltage law – are the more remarkable when we consider that Kirchhoff's principal interest was in his pioneering work in spectroscopy with the noted German chemist Robert Bunsen, to whom we owe the Bunsen burner. In that field there is another law of Kirchhoff: Kirchhoff's law of radiation.

Kirchhoff was born in Königsberg, East Prussia, the son of a lawyer. He entered the University of Königsberg at age 18 and graduated with his doctorate five years later. Upon graduation in 1847 he married the daughter of Friedrich Richelot, one of his famous mathematics teachers, and at the same time received a rare travel grant for further study in Paris. The political unrest that led to the 1848 wave of revolutions in Europe forced him to change his plans, and he became a lecturer in Berlin. Two years later he met Bunsen and the two began their famous collaboration. Kirchhoff's great success in spectroscopy drew attention away from his contributions in other branches of physics, but without his electrical laws there would be no circuit theory.

(Source: D. Johnson, J. Johnson and J. Hilborn, *Electric Circuit Analysis*, Prentice-Hall, 1989)