



Heinrich Rudolf Hertz

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Heinrich Rudolf Hertz ([February 22, 1857](#) - [January 1, 1894](#)), was the German physicist for whom the [hertz](#), the SI unit of [frequency](#), is named. In [1888](#), he was the first to demonstrate the existence of [electromagnetic radiation](#) by building apparatus to produce [radio](#) waves.

Hertz was born in [Hamburg, Germany](#), to a [Jewish](#) family that had converted to [Christianity](#). His father was an advocate in [Hamburg](#), his mother the daughter of a doctor. While at school, he showed an aptitude for sciences as well as languages, learning [Arabic](#) and [Sanskrit](#). He studied sciences and engineering in the German cities of [Dresden](#), [Munich](#) and [Berlin](#). He was a student of [Gustav R. Kirchhoff](#) and [Hermann von Helmholtz](#). He obtained his PhD in [1880](#), and remained a pupil of Helmholtz until 1883 when he took a post as a lecturer in theoretical physics at the [University of Kiel](#). In 1885 he became a full professor at the [University of Karlsruhe](#) where he discovered electromagnetic waves.

Following [Michelson's 1881](#) experiment (precursor to the [1887 Michelson-Morley experiment](#)) which disproved the existence of [luminiferous aether](#), he reformulated [Maxwell's equations](#) to take the new discovery into account. Through experimentation, he proved that electric signals can travel through open air, as had been predicted by [James Clerk Maxwell](#) and [Michael Faraday](#), and which is the basis for the invention of [radio](#). He also discovered the [photoelectric effect](#) (which was later explained by [Albert Einstein](#)) when he noticed that a [charged](#) object loses its charge more readily when illuminated by ultraviolet light.

He died in [Bonn](#), Germany.

His nephew [Gustav Ludwig Hertz](#) was a [Nobel Prize](#) winner, and Gustav's son [Carl Hellmuth Hertz](#) invented [medical ultrasonography](#).

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