

In 1905, sometimes described as his annus mirabilis (miracle year), he published four groundbreaking papers.[10] In them, he outlined a theory of the photoelectric effect, explained Brownian motion, introduced his special theory of relativity, and demonstrated that if the special theory is correct, mass and energy are equivalent to each other. In 1915, he proposed a general theory of relativity that extended his system of mechanics to incorporate gravitation. A cosmological paper that he published the following year laid out the implications of general relativity for the modeling of the structure and evolution of the universe as a whole.[11][12] In 1917, Einstein wrote a paper which introduced the concepts of spontaneous emission and stimulated emission, the latter of which is the core mechanism behind the laser and maser, and which contained a trove of information that would be beneficial to developments in physics later on, such as quantum electrodynamics and quantum optics.[13]