

Watch an Early Silent Film About the Theory of Relativity

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Albert Einstein first published his theory of special relativity in 1905; his work on general relativity followed in 1915. By 1923, Premier Productions made a silent film to explain the most salient bits. Though it's entirely silent (and, of course, 100 years old), it's a thoroughly lucid way to understand Einstein's most important work—with some great vintage animation as well.

The theory of special relativity revolutionized the ways that scientists study and understand the universe. It introduced the famous equation $E = mc^2$, which stands for “energy = mass x the speed of light squared.” Fundamentally, special relativity proposes that mass and energy are the same thing but in different forms. Each can be converted to the other form under specific conditions.

The early scicomm effort seems pretty janky to us now, but a century ago, the creators were not only trying break down a complicated theory that underlies space-time, but also doing so with film, a fairly new technology back then. The movie's homespun aesthetic peaks at the 1:45 mark when the filmmakers strap two pistols to a wheel, set it spinning madly, and fire the pistols simultaneously. The filmmakers used animation rather than real slow-motion photography to show the relative speeds of light and bullets in this bit. Again, it was 1923—no fancy CGI or digital effects.

Another highlight concerns the relativity test being conducted during the solar eclipse of 1919, which confirmed a hypothesis that gravity affects light, time, and space, overruling Sir Isaac Newton's theory of gravity. For that reason, the European Space Agency has called the event “the most important eclipse in the history of science.”

You can download this film from the Prelinger Archives via the Internet Archive. If this rudimentary physics lesson leaves you with questions, you can watch Einstein explain his theory of relativity himself or find out if it precludes interstellar space travel.

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