

# The Day We Felt Two Black Holes Collide - Adam Brown

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## SUMMARY

*LIGO, a laser interferometer, has enabled scientists to detect gravitational waves caused by black hole mergers, marking a significant advancement in astrophysics. Since its activation in late 2015, LIGO has recorded thousands of events, including the first detection of gravitational waves from a black hole collision that occurred 1.6 billion years ago.*

- LIGO is a highly sensitive laser interferometer designed to detect vibrations in spacetime.*
- The first significant detection occurred shortly after LIGO was activated in late 2015.*
- The initial event involved the merger of two black holes, each about 30 times the mass of the sun.*
- This black hole collision happened 1.6 billion years ago, reaching Earth just weeks after LIGO's activation.*
- LIGO has since recorded thousands of gravitational wave events from various black hole mergers.*
- The ability to "feel" spacetime vibrations has revolutionized our understanding of the universe.*

About a decade ago, we not only saw black holes, we felt them. So, LIGO is this huge interferometer, laser interferometer, that we built at a number of different sites that is super attuned to vibrations in spacetime itself. And there's a famous event pretty much immediately after we turned it on in late 2015 where we felt spacetime shaking. We were able to >> >> back-calculate that the thing causing them to shake was the collision of two ginormous black holes, two black holes both of which weighed about 30 times as much as the sun. That collision happened about 1.6 billion years ago and just happened to reach the Earth within weeks of us turning on the LIGO detectors. We've now seen, we've now felt more accurately, thousands of such shakings corresponding to thousands of black hole mergers.