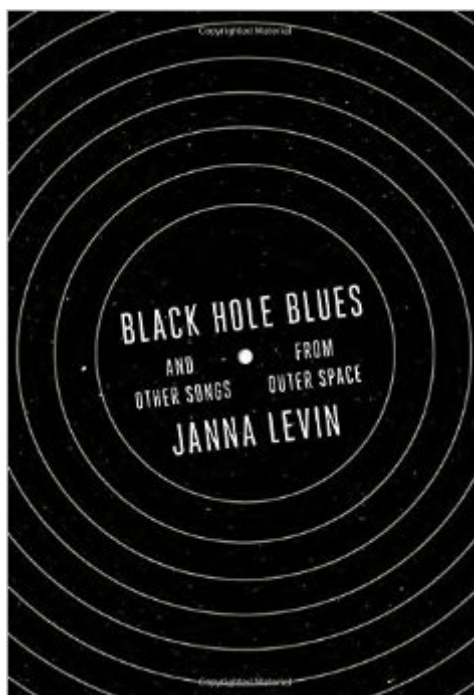


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Black Hole Blues And Other Songs From Outer Space



Synopsis

The authoritative story of the headline-making discovery of gravitational waves by an eminent theoretical astrophysicist and award-winning writer. From the author of *How the Universe Got Its Spots* and *A Madman Dreams of Turing Machines*, the epic story of the scientific campaign to record the soundtrack of our universe. Black holes are dark. That is their essence. When black holes collide, they will do so unilluminated. Yet the black hole collision is an event more powerful than any since the origin of the universe. The profusion of energy will emanate as waves in the shape of spacetime: gravitational waves. No telescope will ever record the event; instead, the only evidence would be the sound of spacetime ringing. In 1916, Einstein predicted the existence of gravitational waves, his top priority after he proposed his theory of curved spacetime. One century later, we are recording the first sounds from space, the soundtrack to accompany astronomy's silent movie. In *Black Hole Blues and Other Songs from Outer Space*, Janna Levin recounts the fascinating story of the obsessions, the aspirations, and the trials of the scientists who embarked on an arduous, fifty-year endeavor to capture these elusive waves. An experimental ambition that began as an amusing thought experiment, a mad idea, became the object of fixation for the original architects—Rai Weiss, Kip Thorne, and Ron Drever. Striving to make the ambition a reality, the original three gradually accumulated an international team of hundreds. As this book was written, two massive instruments of remarkably delicate sensitivity were brought to advanced capability. As the book draws to a close, five decades after the experimental ambition began, the team races to intercept a wisp of a sound with two colossal machines, hoping to succeed in time for the centenary of Einstein's most radical idea. Janna Levin's absorbing account of the surprises, disappointments, achievements, and risks in this unfolding story offers a portrait of modern science that is unlike anything we've seen before.

Book Information

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Customer Reviews

A few weeks ago the world of science was rattled – and rattled seems like the right word – by the discovery of gravitational waves, a culmination of Einstein’s general theory of relativity which the great man predicted a hundred years ago. The waves came from the collision of two black holes, an event of woefully cataclysmic magnitude, releasing energy billions of trillions of times that produced by the sun. And yet astonishingly, the collision registered here on earth in the form of a tremor so slight as to defy imagination, a tremor displacing a giant mirror located in desert scrubland by no more than a thousandth of the width of a proton. In this book author and physicist Janna Levin tells us the story of the history of that event, the machinery that went into its almost imperceptible detection and most importantly, the human beings who made this discovery possible. The book shines mainly in two aspects. Firstly, being a physicist herself Levin brings an authoritative touch to explaining the science behind gravitational wave detection. Both the history of the field as well as its present incarnations get due credit. The list of topics Levin touches on encompass such astronomical anomalies as neutrons and pulsars, intense x-rays from outer space and black holes themselves as well as more earthly accomplishments such as laser interferometers, radio telescopes and advanced electronics. Brilliant scientists like John Wheeler, Albert Einstein and Robert Oppenheimer who worked on relativity and black holes make frequent appearances. Both theory and experiment get a nod, and it’s clear that the best science involves both abstract theorizing as well as expert craftsmanship and engineering.

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