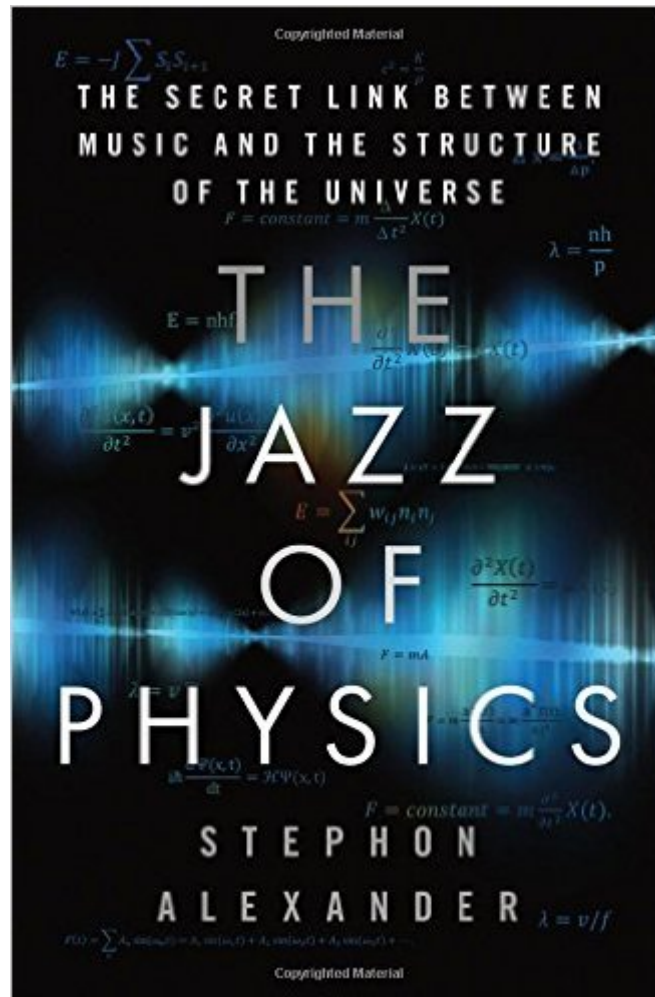


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# The Jazz Of Physics: The Secret Link Between Music And The Structure Of The Universe



## Synopsis

More than fifty years ago, John Coltrane drew the twelve musical notes in a circle and connected them by straight lines, forming a five-pointed star. Inspired by Einstein, Coltrane had put physics and geometry at the core of his music. Physicist and jazz musician Stephon Alexander returns the favor, using jazz to answer physics's most vexing questions about the past and future of the universe. Following the great minds that first drew the links between music and physics—a list including Pythagoras, Kepler, Newton, Einstein, and Rakim—The Jazz of Physics revisits the ancient realm where music, physics, and the cosmos were one. This cosmological journey accompanies Alexander's own tale of struggling to reconcile his passion for music and physics, from taking music lessons as a boy in the Bronx to studying theoretical physics at Imperial College, London's inner sanctum of string theory. Playing the saxophone and improvising with equations, Alexander uncovered the connection between the fundamental waves that make up sound and the fundamental waves that make up everything else. As he reveals, the ancient poetic idea of the "music of the spheres," taken seriously, clarifies confounding issues in physics. Whether you are more familiar with Brian Greene or Brian Eno, John Coltrane or John Wheeler, the Five Percent Nation or why the universe is less than five percent visible, there is a new discovery on every page. Covering the entire history of the universe from its birth to its fate, its structure on the smallest and largest scales, The Jazz of Physics will fascinate and inspire anyone interested in the mysteries of our universe, music, and life itself.

## Book Information

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## Customer Reviews

I'm sorry to report that this book really let me down. The subtitle of this book is "the secret link between music and the structure of the universe" and I was hoping for some good, illuminating analogies. (I teach a course in relativity so I am not coming at this as a total novice) Unfortunately, the author's analogies are strained and forced, and left me with nothing I could use with my own students. This book is much more of personal narrative of what jazz has meant to the author as a scientist, and what science has meant to the author as a musician, as inspiration and muse going both directions. Fair enough; I have had many of the same inspirations. It contains lots and lots of the first person; stories about his youth, encounters with other musicians and scientists, his journey, and his love for the topics, etc. Also fair enough, and occasionally interesting to me. But his scientific explanations leave a lot out - he often lurches into advanced concepts without sufficient preamble for the beginner. On the other hand his analogies between the two disciplines often come out of left field - "in his song 'Jupiter' one can hear John Coltrane literally channelling Jupiter's moons in his improvisation." At best this comes across as drunken late-night fan-boy-ism, and at worst it can verge on paranoid-schizophrenic ramblings. Coltrane may have been inspired by Einstein, but did he "correctly realized that the expansion [of the universe] is a form of anti-gravity"? Absolutely not. No way. This sort of thing has been done much more elegantly and inspirationally.

Don't be afraid of this book. If you love exploring new ideas, you will love this book. If you like being introduced to some incredible people through biographical vignettes, you will love this book. If like a good story of discovery you will love this book. I've only finished three chapters, so I can't do a complete review yet. But here are just some of the things that those first three chapters have done for me. 1. They have introduced me to a kid, (the author, Stephon Alexander), whose family is from Trinidad, who grew up in the Bronx with a grandmother who wanted him to become a musician to escape poverty, who went to public schools, who listened to Hip-Hop and Battle Rap and wore dreadlocks, but who is now a theoretical physicist, jazz musician, cosmologist, Ivy-League professor, and someone who knows how to tell a good story. 2. I've learned how understanding magnetism led to a way to describe neural networks; and how that in turn is leading to new approaches for understanding the structure of our Universe. 3. I've been introduced to Small's Jazz Club in New York City. And by going online I have learned about it's fascinating history, the availability online of most performances there since 2007, and the unique and well thought-out revenue sharing model that supports both the musicians and the club. 4. I've learned that a parsec is a unit of measure in cosmology that equals approximately 19 trillion miles. That as recently as 1920 there was serious scientific debate about whether there were any galaxies other than our own in the

Universe. And that in 1989 Margaret Geller, the daughter of an X-ray crystallographer, along with John Huchra, mapped out other galaxies that extend for 100 million parsecs.

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