

Hawking Sonified: The Composition of a Pattern/Pulse Piece that Illuminates the Lectures of Stephen Hawking

By

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Abstract

Hawking Sonified is a piece composed in homage to the great cosmologist and theoretical physicist, Stephen Hawking. The piece is a four movement work that musically illuminates four selected lectures given by Professor Hawking in his own, uniquely synthesized voice. The compositional approaches are indicative of the pattern/pulse school of minimalistic composition. The software environments used to compose the piece were created by Lawrence Moore using the Pure Data computer music programming language. The software modules contained achieve the musical effects through looping recorded lecture examples at various intervals and processing the audio through band pass filters and amplitude envelopes that generate pulsing effects. These processes combined with spatial manipulation within an octophonic speaker system create a musical realization of the topics discussed in the selected lectures. The selected lectures cover the physical phenomena of entropy, the event horizon of black holes, expansion of the universe in imaginary time, and the expansion of the universe in real time.