Thomas Hertog
Biography

Thomas Hertog is a Belgian cosmologist and theoretical physicist renowned for his groundbreaking work with Stephen Hawking on quantum cosmology and the origins of the universe. Born on May 30, 1975, in Leuven, Belgium, he studied at KU Leuven before earning his Ph.D. at the University of Cambridge under Hawking's supervision. Hertog's research explores deep questions about the Big Bang, the multiverse, and the nature of time, with a particular focus on the holographic principle—a radical idea suggesting that our 3D universe might be encoded on a 2D boundary, much like a hologram.

One of Hertog's most significant contributions, developed alongside Hawking in their final collaboration, is the theory of a holographic origin of time. This model proposes that time, as we experience it, emerged from a timeless quantum state before the Big Bang. Unlike classical cosmology, which assumes time began at the singularity, their framework suggests that the early universe was a kind of quantum hologram, where time and space were not yet fully defined. This idea challenges the traditional view of cosmic inflation and offers a new way to reconcile quantum mechanics with Einstein's theory of gravity.

Hertog co-authored *The Grand Design* (2010) with Hawking, which popularized cutting-edge theories like M-theory and the idea that the universe could arise from "nothing" without divine intervention. His latest book, *On the Origin of Time: Stephen Hawking's Final Theory* (2023), delves deeper into their holographic cosmology, presenting a bold vision where the laws of physics themselves evolve. Today, Hertog is a professor at KU Leuven, where he continues

to refine these revolutionary ideas, pushing the boundaries of our understanding of reality while honoring Hawking's legacy.

Major Books

On the Origin of Time: Stephen Hawking's Final Theory (2023):

Explores the revolutionary "top-down cosmology" developed during Hertog's twenty-year collaboration with Stephen Hawking, proposing that the laws of physics are not fixed but instead evolved alongside the universe in a Darwinian-like process

Big Bang: Imagining the Universe (with Barbara Baert and Jan van der Stock, 2021):

An interdisciplinary anthology that bridges science and art to examine how humans have visualized and conceptualized the origins of the cosmos, tracing the cultural and scientific impact of the Big Bang theory.