

# Relativity in 12 Minutes



The DSO honors Einstein's century with Cindy McTee's world premiere

STAFF PHOTO: JEREMY CHESNUTT

IT'S A SCIENCE: Composer Cindy McTee and conductor Andrew Litton look over the *Einstein's Dream* score, which intertwines pre-recorded music with a live orchestra.

**By Glenn Arbery**  
Senior Editor

It's been 100 years since Einstein's three major papers of 1905 changed physics forever, but what that century means depends on where you stand.

Conceptually speaking, most of us still inhabit a Newtonian universe where absolute time proceeds smoothly, everywhere the same. Einstein definitively overthrew Newtonian time in one of his 1905 papers, but his insights on relativity still seem radically new, as though the news were just reaching us from some distant star.

Not for University of North Texas professor Cindy McTee,

though. This weekend, the Dallas Symphony Orchestra presents the world premiere of her new composition, *Einstein's Dream*, the fruit of her long meditations on Einsteinian time.

Ms. McTee became fascinated with the musical possibilities of Einstein's thought a decade ago, when she read Alan Lightman's novel *Einstein's Dreams*.

"The book reads like a diary," she said recently, "each entry recording the dreams of Albert Einstein as he worked on his 1905 papers."

Inspired by Lightman's imaginative ways of describing different kinds of time, she wrote a piece for chamber ensemble in 1996 using the author's ideas as

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**Cindy McTee**  
UNT music professor

points of departure for the creation of analogous musical materials and forms. And that wasn't the end of her fascination.

"In 2000, I was able to re-focus my thoughts about time and music in composing a new orchestral work for the Dallas Symphony Orchestra to cele-

brate its 100th anniversary season and the beginning of the new millennium," she said. "I entitled the work, *Timepiece*, not only for its connection to the celebration of special events marking time, but also for the manner in which musical time

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## Dream

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shapes the work.

"The piece begins slowly, 'before' time, in a womb-like, subjective, holding place. And then a clock-like pulse emerges, takes control, and provides the driving force behind a sustained, highly energized second section of about six minutes."

The DSO's Andrew Litton loved it and wanted to work with her again. He commissioned another piece for this year, but Mr. Litton was not thinking about Einstein.

"I had thought of doing a short piece on something, like — you know — *spring*," he told me last week by telephone, laughing. "But that kind of music has been done already. She's come up with quite an ambitious undertaking." Emphasis on *quite*.

"Einstein dreamt about finding a theory of everything," said Ms. McTee, "a broad, mathematical structure that would fully explain and link together all known phenomena. Artists, too, are often preoccupied with structuring their works in such a way as to achieve unity on both large and small scales. In my new work, for example, the pitch 'E' ('E' for Einstein, of course) is 'home base' and provides a thread of continuity throughout the work.

She wanted to "wrap" the work around current world events, so she borrowed from a Bach chorale entitled, *Wir glauben all' an einen Gott* (We all believe in one God), transposed to the key of "e."

"The 'relativity' of past and current musical idioms is intended to uncover new temporal relationships," she said.

Her piece includes prerecorded computer music that uses "time-stretching" techniques with the Bach chorale tune.

"Time-stretching is perhaps loosely analogous to the way Einstein's equations of relativity predict that gravity, or the curvature of space-time by matter, not only stretches or shrinks distances, but also appears to slow down or dilate the flow of time. Concepts of before and after merge," she said.

"What most intrigued me about musical time-stretching was its ability to shift the listener's attention toward the inner components of the sound — the harmonics and the overlapping resonant regions — as if inviting a kind of meditation to wonder at the secrets, to dream."

Mr. Litton's task this weekend will be to get the music across.

"My challenges are doubled in a sense because it's a tricky piece," he said. "I've got to line up [the live orchestra] with a prerecorded set of effects."

Although he's not steeped in Einstein's thought, he says that the music strikes him as a "musical depiction" of the recent film *What the Bleep Do We Know?*

"It's a quest on all sorts of fundamental levels. I don't know if it can go as far as the film does — it's just a 12 minute piece — but there sure are a lot of elements at work that raise questions."

Most interesting for him will be the response.

"One of the things I want to see is the audience reaction. Any time you do a world premiere you have no idea what it's going to be like."

In other words, what 12 minutes means depends on where you stand.