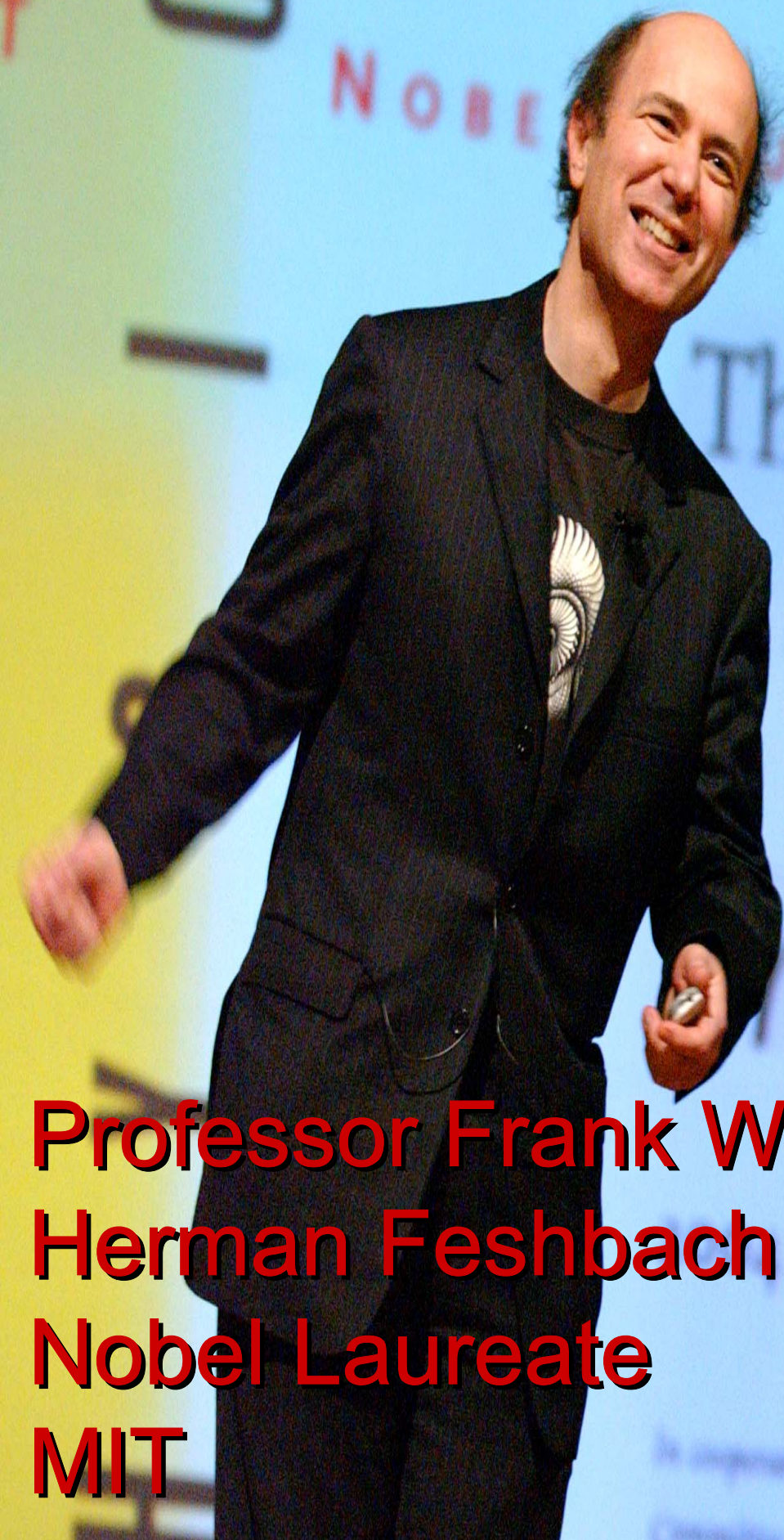


2005 Miller-Breit Lectures



NOBEL LECTURE SERIES
The Universe
a Strange Place

Frank Wilczek

Professor Frank Wilczek
Herman Feshbach Professor of Physics
Nobel Laureate
MIT

**“The Origin of Mass and the
Feebleness of Gravity”**

Monday, September 12, 2005

4:00 p.m. in Sloane Physics Lab 59

Einstein's famous equation $E=mc^2$ asserts that energy and mass are different aspects of the same reality. In the mind of the general public, it is usually associated with the idea that small amounts of mass can be converted into large amounts of energy, as in nuclear reactors and bombs. For fundamental physics, however, the more important idea is just the opposite. We want to explain how mass itself arises, by explaining it in terms of more basic concepts. An important part of my work has been to show that this goal can, to a remarkable extent, be achieved. I'll discuss how -- it's quite beautiful! I'll also discuss some of the consequences -- suggestions for new physical phenomena, and an explanation of why gravity is so feeble.

Lecture for General Audience

“The Universe is a Strange Place”

Tuesday, September 13, 2005

4:00 p.m. in Sloane Physics Lab 59

Over the course of the twentieth century we have constructed a very successful fundamental theory of the behavior of matter. Viewed from this perspective, the world looks very different from our everyday reality. It is a very strange place, and a beautiful one -- in particular, we've come to understand that the building blocks of matter appear as notes in a Music of the Void. I'll describe this using a combination of facts, pictures, and jokes. Finally I'll discuss some recent discoveries indicating that the world is even stranger than we've understood so far, and how we're rising to the challenge.