3-24-2009

Extreme Physics Where Small and Big Things Meet

Young-Kee Kim

Follow this and additional works at: http://digitalcommons.imsa.edu/great_minds_lectures

Part of the Cosmology, Relativity, and Gravity Commons, and the Physics Commons

Recommended Citation

http://digitalcommons.imsa.edu/great_minds_lectures/14

This Presentation is brought to you for free and open access by the Lecture Series at DigitalCommons@IMSA. It has been accepted for inclusion in Great Minds Lectures by an authorized administrator of DigitalCommons@IMSA. For more information, please contact pgarrett@imsa.edu, jean@imsa.edu.
The profound discovery of Einstein a century ago, that particles can both be made from energy and disappear back into energy, inspires the experiments that provide our knowledge of the smallest building blocks of matter and the interactions between them. Experiments, done at enormous accelerators, have led to a consistent theory of the origins of our world up to a certain point. However, at an energy scale not far above what we can attain at existing accelerators, this picture is predicted to break down. Moreover, the theory of the very small is intimately connected to cosmology -- the ultimate cause and structure of our universe. Cosmological observations again point to the need for a new theory in this energy range. In this talk, I will trace out the path from where we are and what we need to do to take the next step towards understanding the nature of space and time.