

Subject: Join us for the Fall Emeriti Lecture

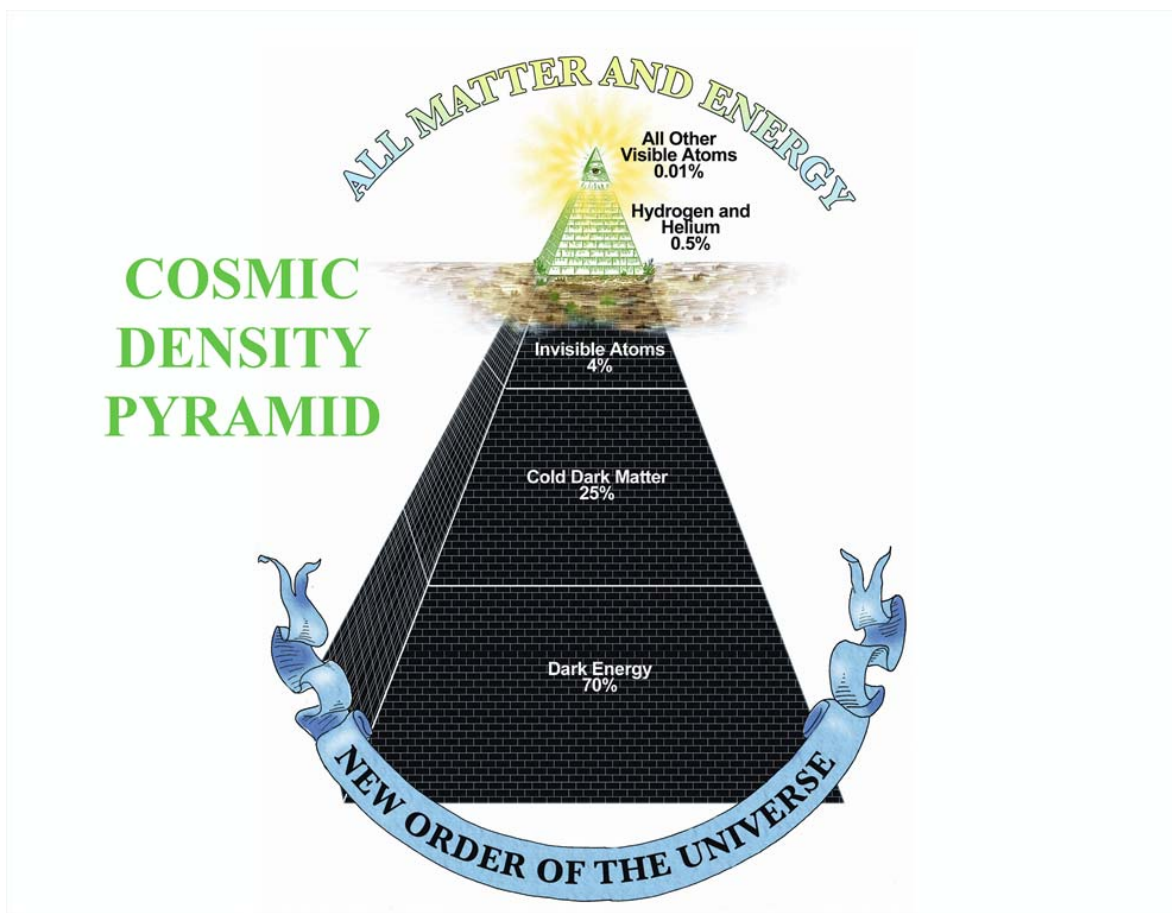
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State of the Universe Report



The UC Santa Cruz Emeriti Association presents the 2020 Fall Emeriti Faculty Lecture featuring Joel Primack, professor emeritus of physics.

Tuesday, November 10, 2020

7 p.m.

Virtual on Zoom

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This lecture will discuss the current understanding and the latest discoveries regarding cosmology—the science of the universe as a whole—and galaxies and planets. There is overwhelming evidence that most of the density of the universe is invisible dark matter and dark energy, with atomic matter making up only about five percent of cosmic density. UC Santa Cruz cosmologists helped to create the standard modern cosmological theory—but the latest high-precision measurements have revealed potential discrepancies that may require new physics. Galaxies were long thought to start as disks of gas and stars, but observations by Hubble Space Telescope show that most galaxies instead start pickle-shaped. More massive galaxies have massive black holes at their centers, and matter falling onto these black holes causes outflows of energy that can strongly affect their host galaxies. Information about planetary systems is growing rapidly with new observations, and our own solar system seems increasingly to be unusual.

Moderated by Barry Bowman, professor emeritus of MCD biology.

For questions, please contact the Special Events Office at (831) 459-5003 or specialevents@ucsc.edu.



Joel R. Primack specializes in the formation and evolution of galaxies and the nature of the dark matter that makes up most of the matter in the universe. After helping to create what is now called the "Standard Model" of particle physics, Primack began working in cosmology in the late 1970s, and he became a leader in the new field of particle astrophysics. His 1982 paper with Heinz Pagels was the first to propose that a natural candidate for the dark matter is the lightest supersymmetric particle. He is one of the principal originators and developers of

the theory of Cold Dark Matter, which has become the basis for the standard modern picture of structure formation in the universe. With support from the National Science Foundation, NASA, and the Department of Energy, he has been using supercomputers to simulate and visualize the evolution of the universe and the formation of galaxies under various assumptions.



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