



北京大学百年物理讲坛

Centennial Physics Lectures at Peking University

Lecture 18

Dark Ages to Dark Endings: The Life Cycles of Galaxies in the New Cosmology

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地点: 北京大学物理学院西楼202会议室



Abstract

One of the unheard triumphs of twenty-first century astronomy has been the development of a nearly complete picture of how galaxies, that largest stellar structures in the Universe, formed and evolved. Even more remarkably, this entire process can be calculated theoretically and numerically, beginning with quantum fluctuations in the Big Bang itself, which subsequently grew and aggregated into ever larger clumps of matter, to eventually form the galaxies and stars we observe today. This process of aggregation, galaxy formation, and galaxy growth continues to this day. The same Cold Dark Matter cosmology which accounts for nearly all of the large-scale structure and properties of the Universe itself also can account for the observed masses, structures, formation, and evolution of galaxies, even reproducing Hubble's sequence of galaxy types and structures. This lecture will trace the life cycles of galaxies from their birth to the present day to the future, and review the many sets of observational clues and theoretical calculations which have led to one of the most important astrophysical breakthroughs of our generation.

Robert Kennicutt, 剑桥大学天文研究所Plumian天文与实验哲学教授, 院长。华盛顿大学获得天文学博士学位, 海尔天文台(即今天的卡内基天文台)和加州理工学院任卡内基博士后。

其研究领域是利用近邻星系的观测数据测量他们的恒星形成活动以及演化特征, 以及探究星系哈勃序列背后的物理机制。提出了一系列方法来研究高红移星系的演化、理解大尺度恒星形成和星系演化的物理机制。其研究的另外一方面是标定星系的距离、测量宇宙的尺度及膨胀速率。

Robert Kennicutt教授曾任亚利桑那大学Steward天文台教授、明尼苏达大学天文系助理教授及副教授, 曾担任剑桥大学天文研究所的所长。2006年被推选为美国国家科学院院士, 2011年被推选为英国皇家天文学会会士。

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