**Semi-analytic models**

[**https://ned.ipac.caltech.edu/level5/Sept11/Benson/Benson7.html**](https://ned.ipac.caltech.edu/level5/Sept11/Benson/Benson7.html)

[**http://www.astro.yale.edu/vdbosch/jerusalem\_lecture4.pdf**](http://www.astro.yale.edu/vdbosch/jerusalem_lecture4.pdf)

[**file:///Users/corneliusbencsik/Downloads/Semi-Analytical\_Models\_of\_Galaxy\_Formation.pdf**](file:///Users/corneliusbencsik/Downloads/Semi-Analytical_Models_of_Galaxy_Formation.pdf)

[**https://www.astro.umd.edu/~richard/ASTRO620/MBW\_Book\_Galaxy.pdf**](https://www.astro.umd.edu/~richard/ASTRO620/MBW_Book_Galaxy.pdf)

**This book chapter provides a comprehensive overview of various aspects of galaxy formation and evolution, including a detailed discussion of semi-analytic models.**

**Paper 2:**

* Semi-analytic models (SAMs) are computational tools used in astrophysics and cosmology to simulate the formation and evolution of galaxies. These models combine analytical techniques with numerical methods to describe the physical processes governing galaxy formation in a simplified manner. SAMs are particularly useful for studying a wide range of phenomena, from large-scale structure formation to star formation and metal enrichment, while requiring less computational resources compared to hydrodynamical simulations [1].
* SAMs are designed to be compared with observational data, allowing researchers to tune the models to match various observed properties of galaxies. By populating SAMs with halo merger trees and incorporating phenomenological prescriptions of the baryonic physics governing galaxy formation, these models can be tested against observational data to assess their ability to reproduce the observed properties of galaxies [1].
* In summary, semi-analytic models provide a valuable framework for studying galaxy formation and evolution, allowing for comparisons with observational data and providing insights into the physical processes that shape the universe [1].