

COSMO team



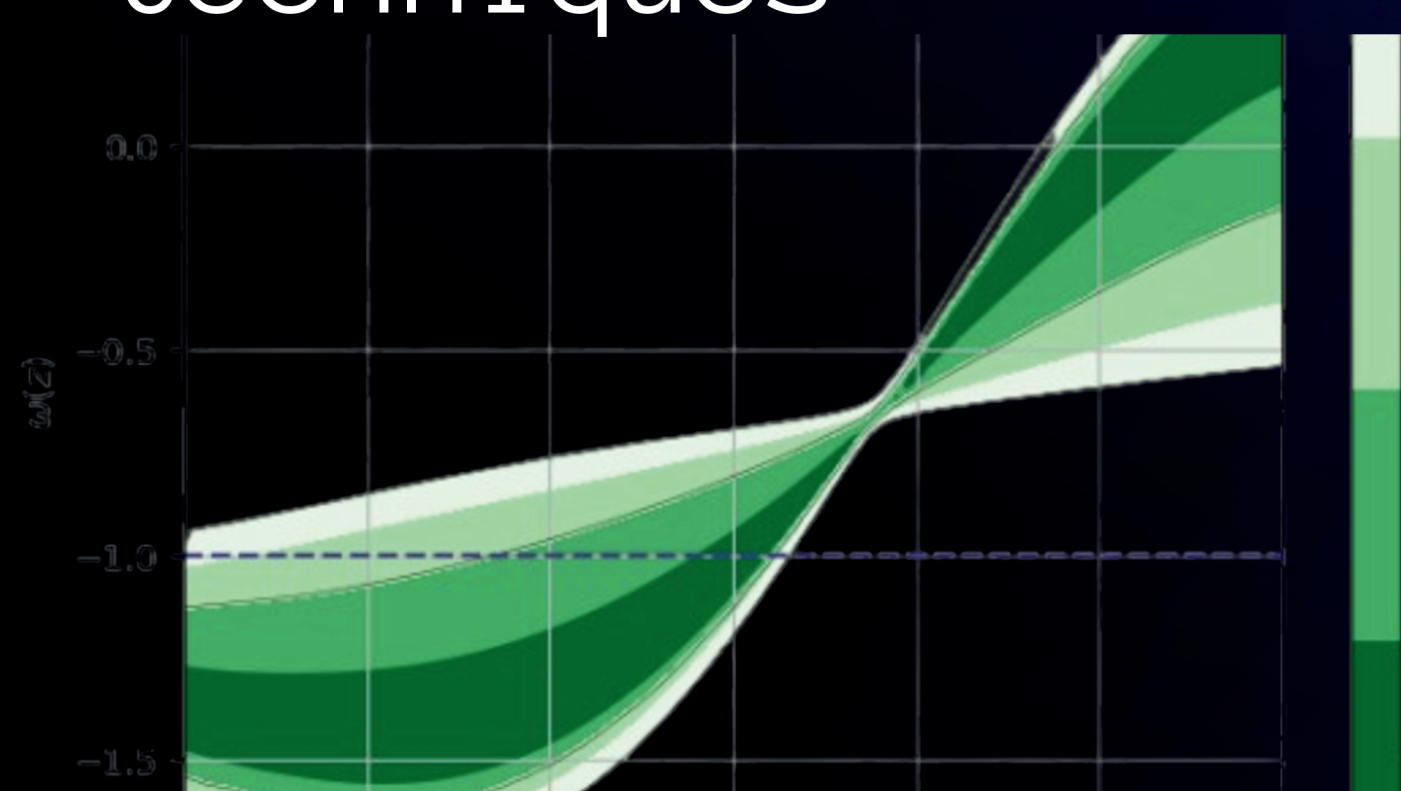
The research focusses on the study of the dark energy and dark matter, leveraging observational data to explore their properties and behaviors. Through the development and implementation of Bayesian statistics, Bio-inspired algorithms, and Machine Learning techniques, we aim to address critical questions regarding the origin, evolution, and ultimate fate of the Universe.



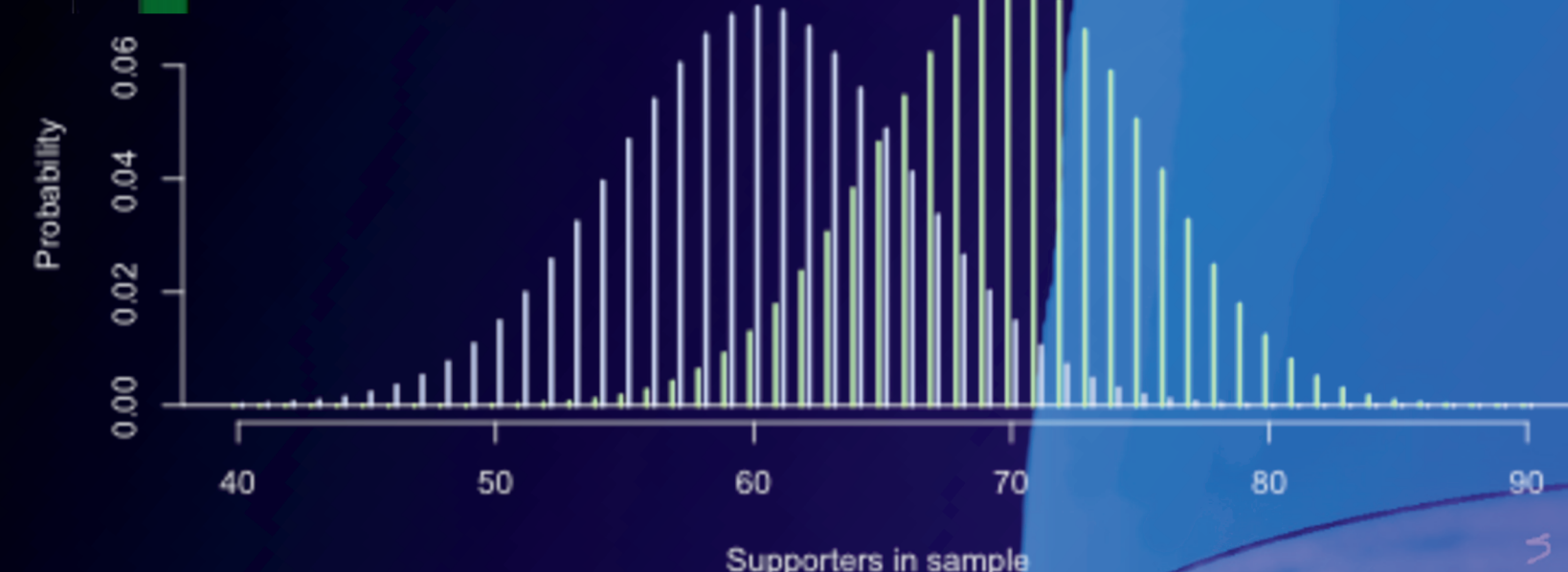
Computational Tools

Statistical methods

Reconstruction techniques



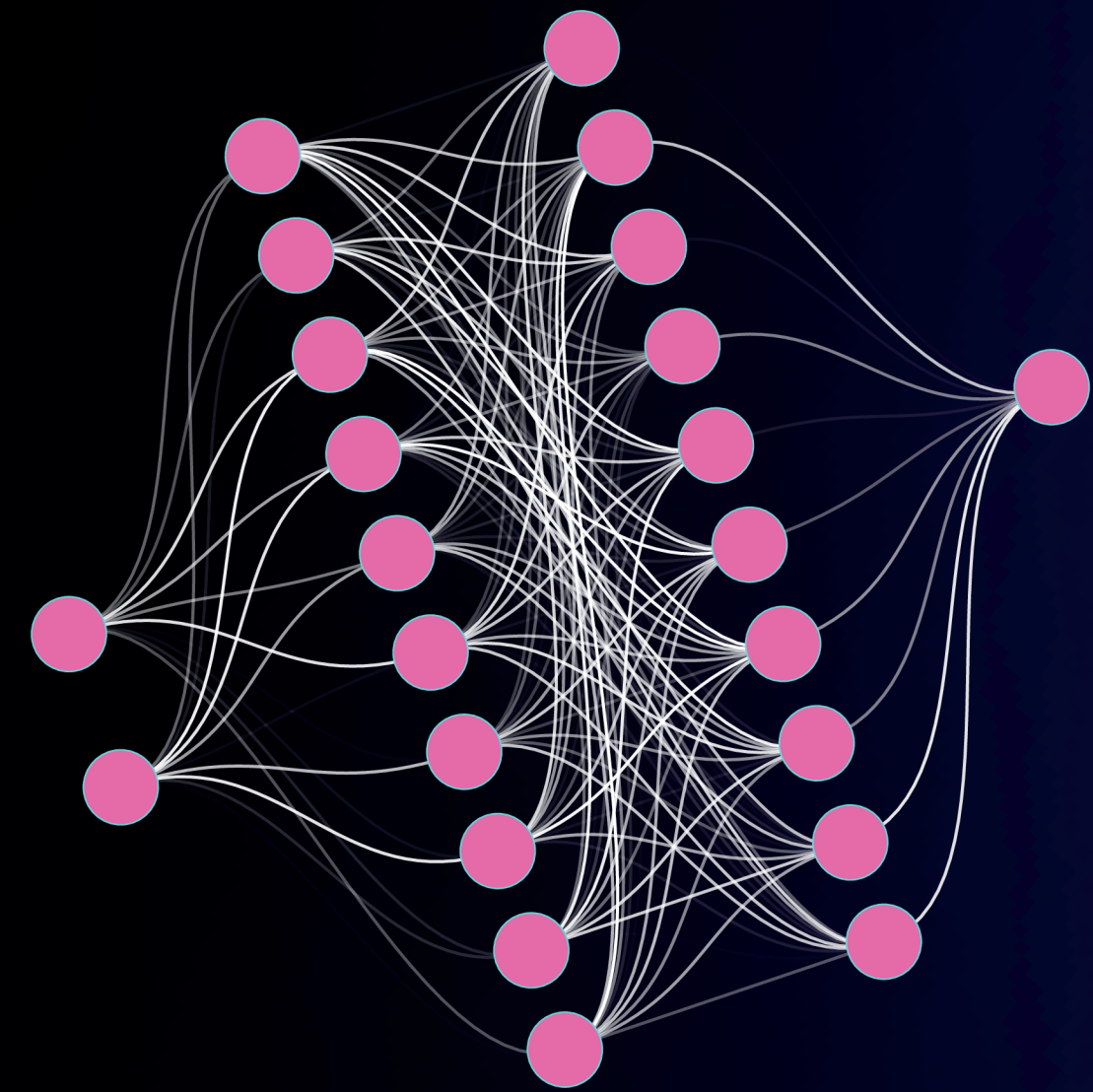
Bayesian Statistics



$$H(t) \equiv \frac{\dot{R}(t)}{R(t)}$$

Machine Learning

Neural Networks



G Lensing



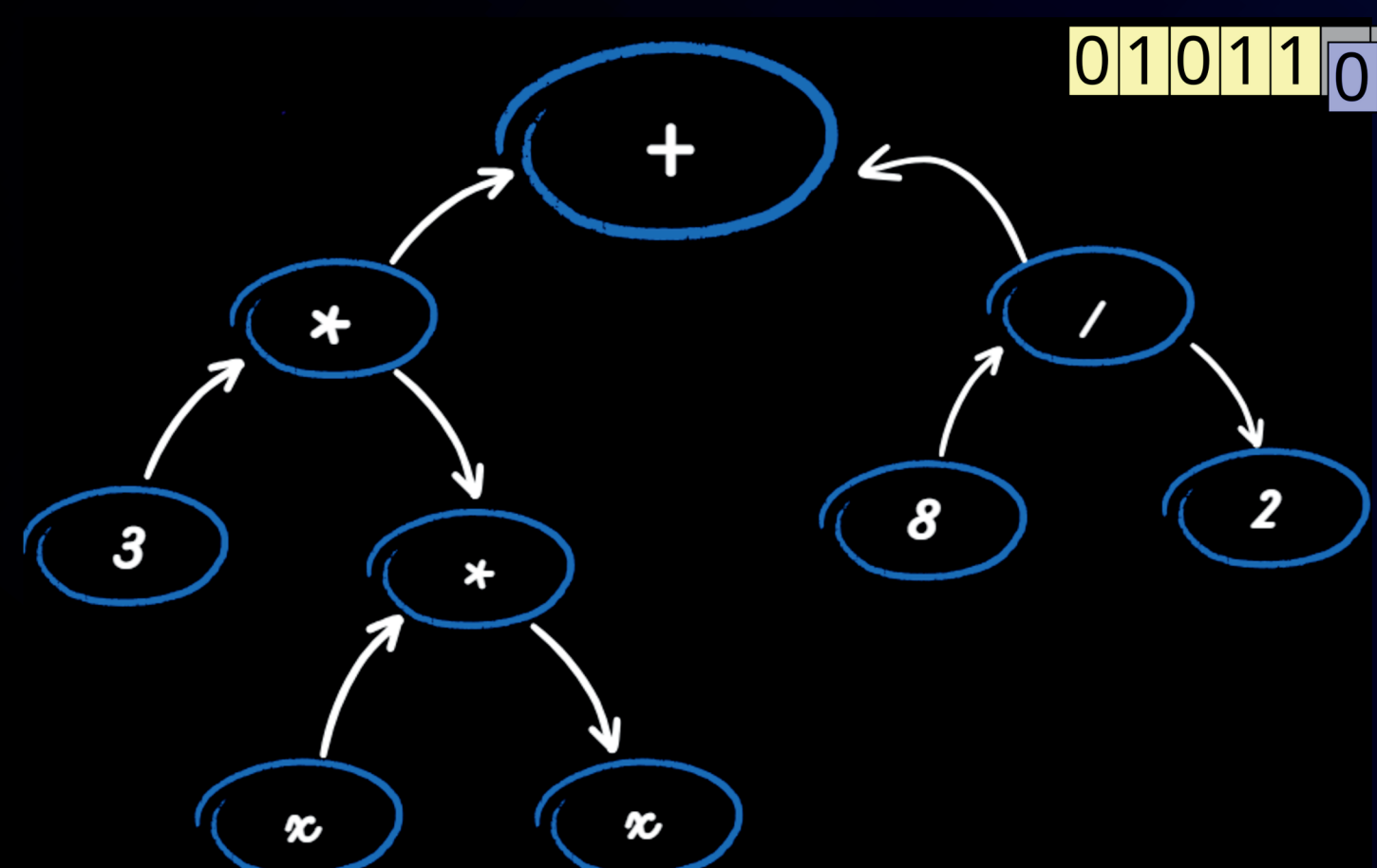
Bio-inspired Computing

Genetic Programming

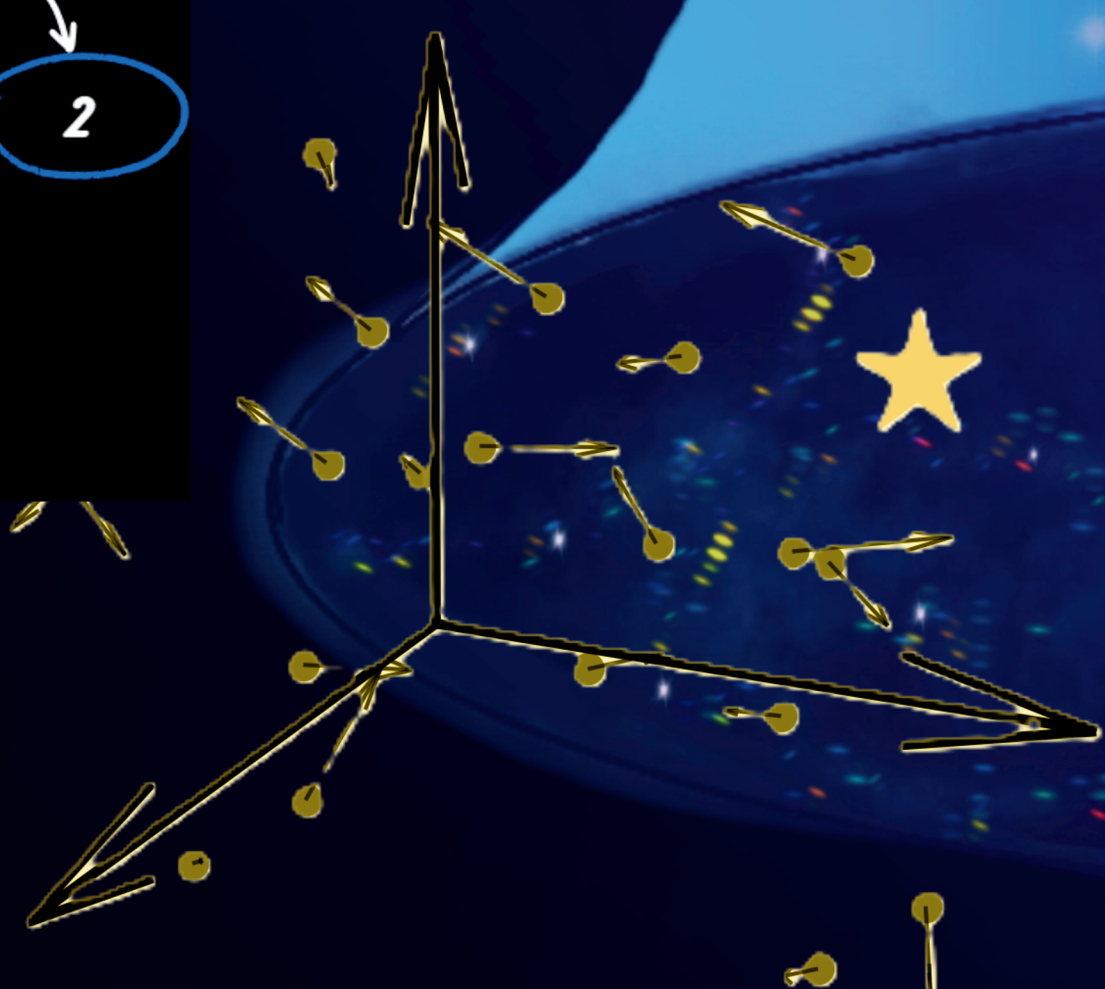
Genetic Algorithms

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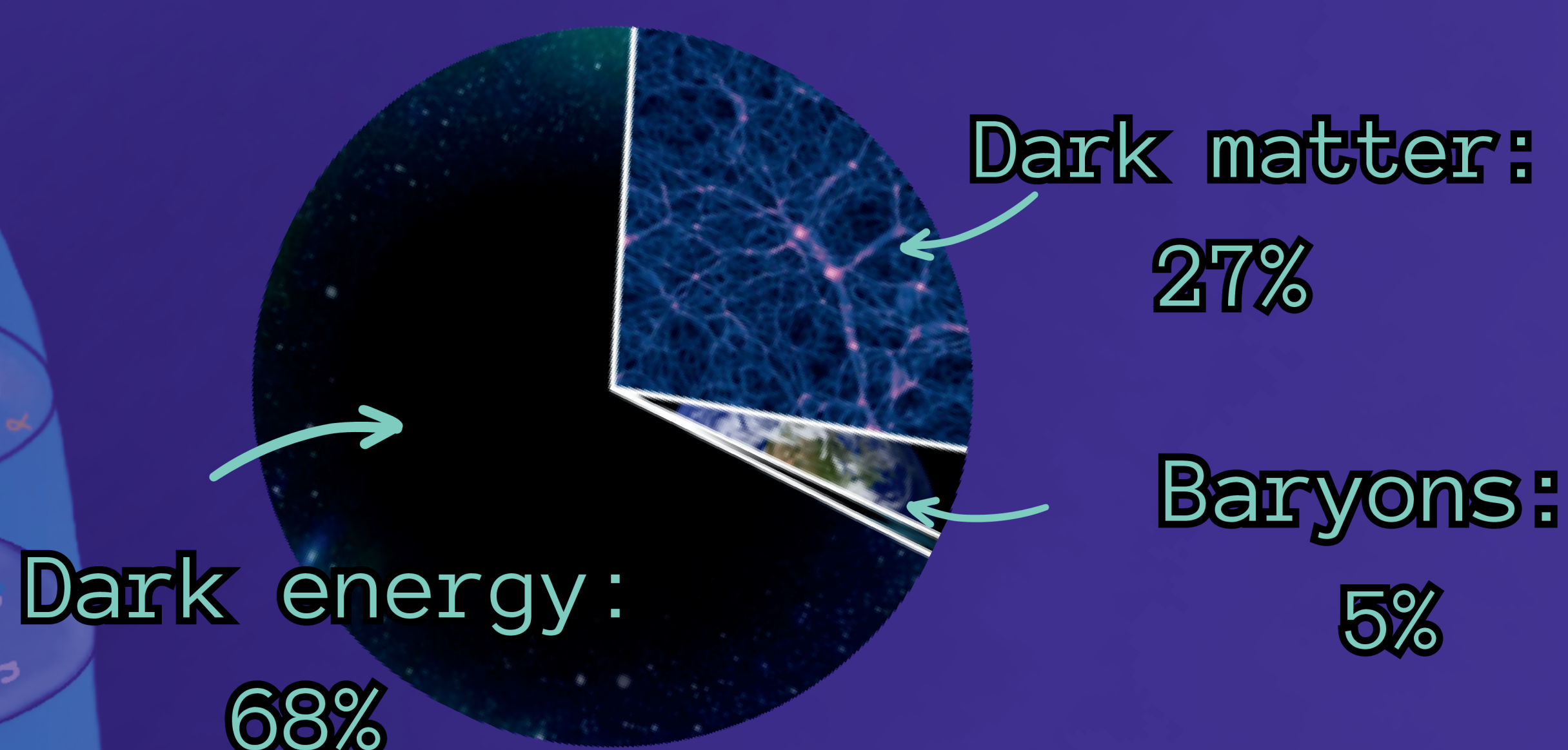
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Particle Swarm



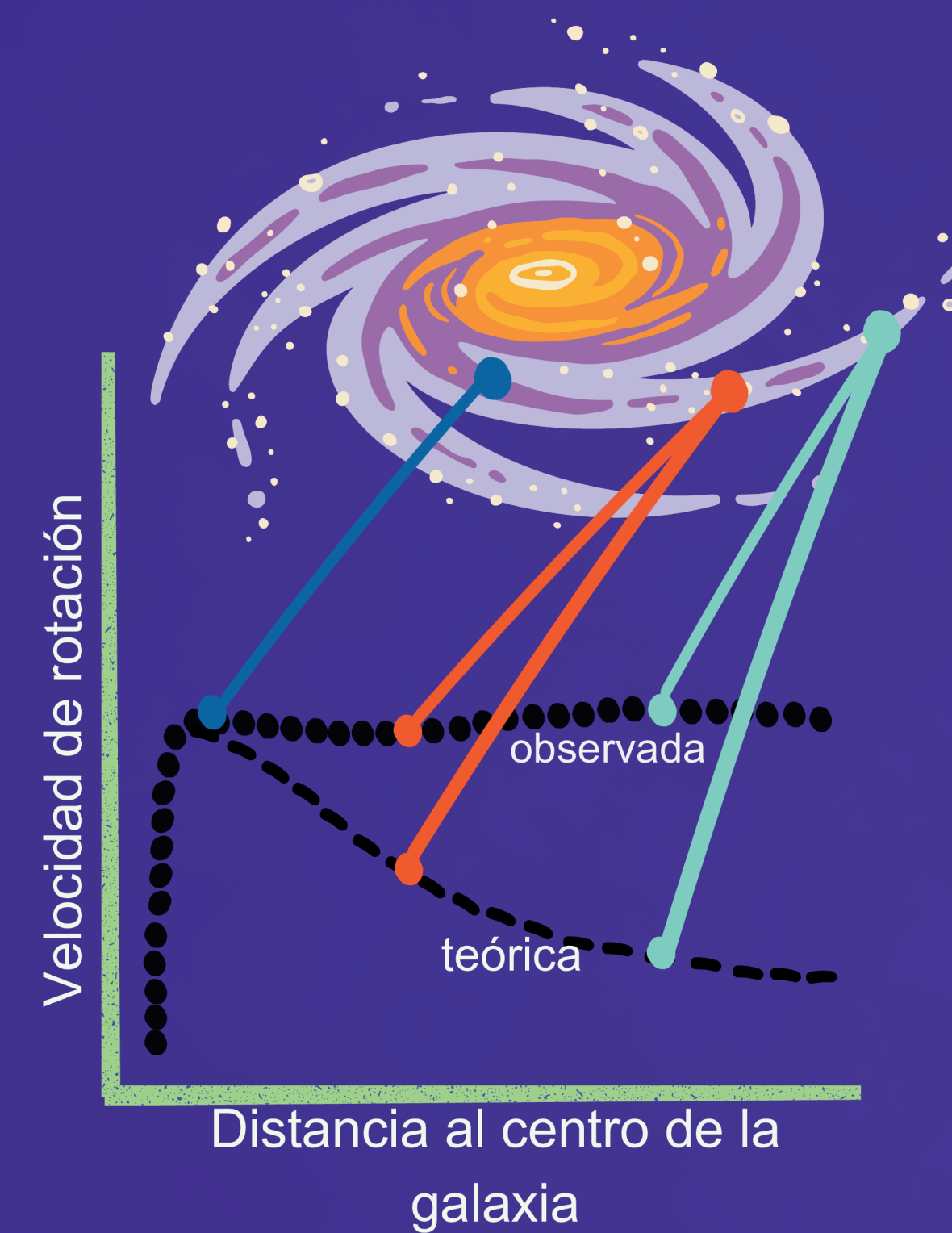
Cosmological Models



Λ CDM

Early DE

Dark matter

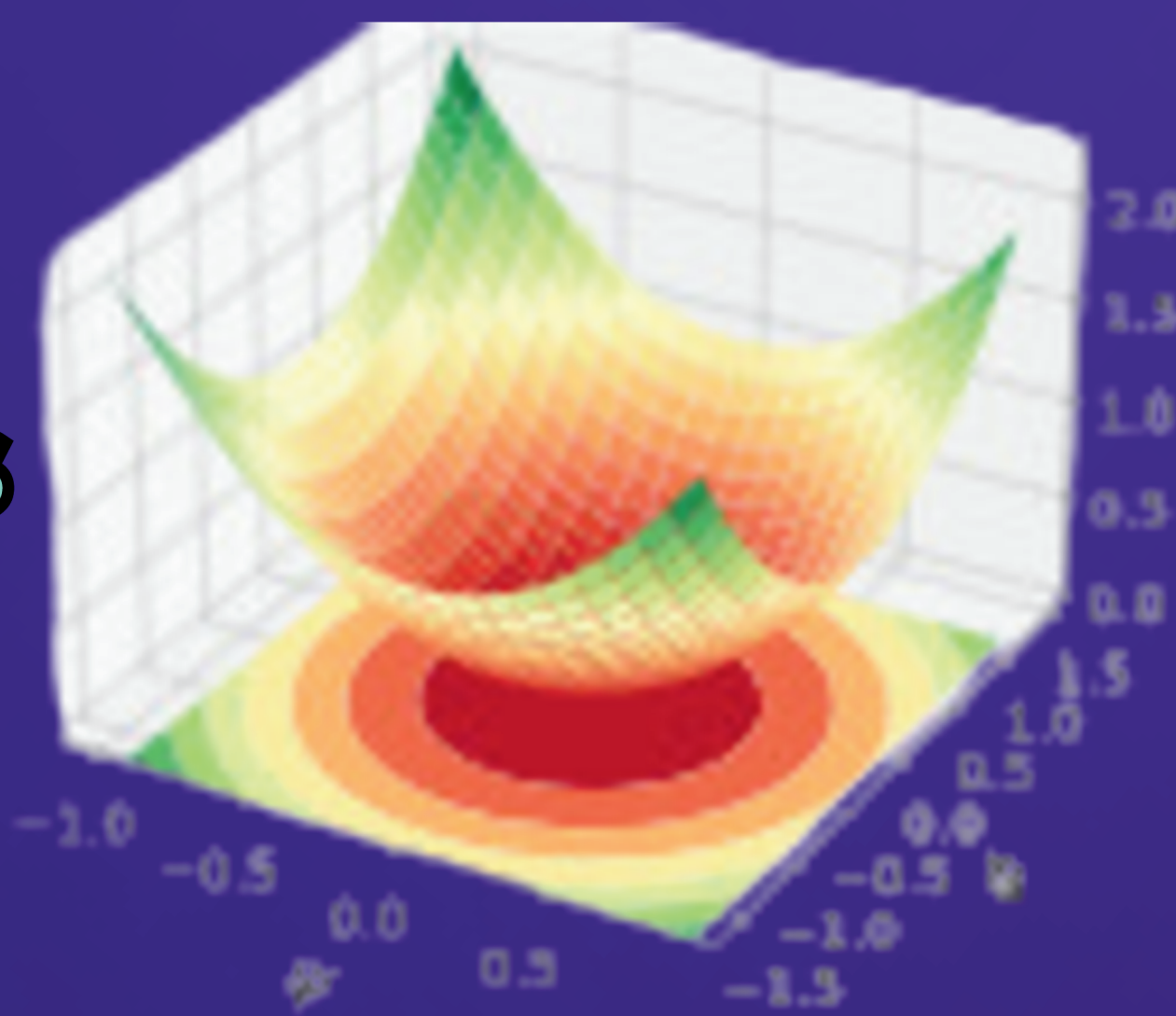


Holographic

$$P = -\frac{A}{\rho^\alpha}$$

Chaplygin

Scalar Fields



Phantom Dark Energy

$$\dot{\rho} + 3H(\rho + p) = 0$$

$$G_{\mu\nu} = R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}R$$

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