



CESAB
CENTRE FOR THE SYNTHESIS AND ANALYSIS
OF BIODIVERSITY

UNICOP

Unification of modern Coexistence theory and Price equation

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Modern coexistence theory provides a unifying framework in ecology for **understanding how species interact and coexist**. Nevertheless, predicting how species abundances change over time for communities of numerous co-evolving species remains largely intractable. Recent efforts to understand eco-evolutionary change in these communities has been highly successful through the synthesis of ecological and evolutionary models, but complete theoretical unification remains unachieved.

UNICOP will adopt a different approach. Rather than synthesising disparate models, it will build new theory from shared fundamental ecological and evolutionary principles. Deductive inference will then be used to derive fundamental unifying equations of eco-evolutionary dynamics. This project will thereby lead to new unifying equations and re-derive existing fundamental equations from first principles. It will seek general truths concerning how shared processes shape the evolution and coexistence of biodiverse communities, and attempt to bridge gaps that currently exist among parallel theoretical frameworks.

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CESAB (Centre for the Synthesis and Analysis of Biodiversity) is FRB's flagship program and an internationally renowned research center whose objective is to implement innovative work to synthesize and analyze existing data sets in biodiversity research.

