MODELS FOR CHIRAL AMPLIFICATION IN SPONTANEOUS MIRROR SYMMETRY BREAKING.
Celia Blanco\textsuperscript{1} and David Hochberg\textsuperscript{2}
\textsuperscript{1}Department of Chemistry and Biochemistry 9510, University of California, Santa Barbara, CA 93106-9510, cblanco@chem.ucsb.edu
\textsuperscript{2}Centro de Astrobiología (CSIC-INTA), Carretera Ajalvir Kilómetro 4, 28850 Torrejón de Ardoz, Madrid, Spain

Introduction: It is an empirical fact that there is an absolute chiral imbalance (or mirror symmetry breaking) in all known biological systems, where processes crucial for life such as replication, imply chiral supramolecular structures, sharing the same chiral sign (homochirality). These chiral structures are proteins, composed of amino acids almost exclusively found as the left-handed enantiomers (L); and DNA, and RNA polymers and sugars, with chiral building blocks composed by right-handed (R) monosaccharides.

Knowing the total number of particles present in the mixture, \( N \), we can calculate the expected initial enantiomeric excess, \( ee_{st} \), in a racemic mixture (inevitable to the system and due to stochastic fluctuations over the ideal racemic system). Our purpose here is to test the ability of some different models to amplify a tiny initial enantiomeric excess, \( ee_{0} \), even lower than the expected imbalance (i.e., using \( ee_{0} < ee_{st} \)).

References: