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Towards an understanding of splitting storms: A theoretical approach

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Splitting storms are often observed phenomena that occur when storms split into a left and a right moving storm. These rotations are related to different signs of the helicity, a conserved quantity in three dimensional vortex dynamics. Expressing the Helmholtz equation of rotational motion in terms of Nambu mechanics leads to an algebraic view of fluid dynamics. By applying this novel algebraic approach, we represent a way to examine the spatial changes of the vortex structures that are related to vortex splits. We simulate the split of idealized supercells and show that the helicity field of strongly rotating supercells breaks into areas with negative and positive helicity.