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**The Genetics and Biophysics of the Epithelial-Mesenchymal Transition (EMT): Can Theoretical Physics Help Cancer Biology**

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In order to spread from the primary tumor to distant sites, cancer cells must undergo a coordinated change in their phenotypic properties referred to as the "epithelial-to-mesenchymal" transition. We have studied the nonlinear genetic circuits that are responsible for this cellular decision-making process and propose that the transition actually goes through a series of intermediate states. At the same time, we have formulated motility models which allow for the correlation of the state of this network and the cell's biophysical capabilities. Hopefully, these thereby efforts will help us better understand the transition to metastatic disease and possible treatments thereof.