

From Networks to Function – Computational Models of Organogenesis

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One of the major challenges in biology concerns the integration of data across length and time scales into a consistent framework: how do macroscopic properties and functionalities arise from the molecular regulatory networks and how do they evolve? Morphogenesis provides an excellent model system to study how simple molecular networks robustly control complex pattern forming processes and how mechanical constraints shape organs. In my talk, I will focus on self-organizing principles in organogenesis, with a particular focus on lung and kidney development, as well as on epithelial organisation.