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The emergence of diversity through spatial niche construction: We will review the work describing the appearance of pattern formation in microbial cultures and connect it to diversity emergence. It is well known in bacterial cultures that the quality and composition of the growing media conditions the emergence of different spatial patterns. It is also known that food stress resulting from density-dependent factors affect mutation rate in bacteria, hence the emergence of diversity. The question we would like to address is the following: how the different region of the pattern, with well defined geometrical properties (fractality, connectedness) and density dependent stresses (density, local density of food and bacteria) will drive the appearance of diversity, and how this may drive the evolution of different niches, which will in turn change the spatial pattern and the and the strategies to exploit them.