Studying the link between spatial and temporal signatures of star formation in galaxies

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On large (galaxy-wide) scales, the appearance (morphology) of galaxies is correlated with their past star formation activity. On the smallest scales within galaxies, the local star formation rate is correlated with the local gas density (also referred to as the Kennicutt-Schmidt law). In this project, students will study the connection between the factors regulating star formation in galaxies on different spatial and temporal scales, and connect different morphological factors of galaxies (such as bars, bulges and spiral arms) with their star formation histories, identifying features that correspond to star formation on different timescales. Depending on the students' interest, this can be done using machine learning methods as well, although some familiarity with programming in python is recommended for that.