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# Constraining how dependent bar ages are on different stellar population models

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## Abstract

The evolution of disc galaxies can be simplified in two phases scenario: when galaxies undergo interactions and, later on, internal evolution becomes significant. The transition between these scenarios remains an open question, but theoretical work and simulations suggest that a stellar bar can form when the disc is settled, driving the formation of internal structures. Determining the age of these bars is not straightforward, as they capture stars from the main disc, mixing populations and complicating age estimation. This project is based on the method presented in SÁ-FREITAS et al. (2023), which isolates these galaxy components using spectral fitting techniques to determine different stellar populations and to obtain the final age of the bar. Yet, the stellar population parameters derived depend directly on the stellar population models adopted in the spectral fitting, and the effect of choosing different models remains to be explored. In this work, the method by SA-FREITAS et al. will be applied to the same sample of galaxies from the TIMER survey, but adopting different stellar population models from the literature. It is known that different groups tailor models to different populations (e.g. star-bursting systems vs. intermediate and old ages) and we aim to quantify how this impacts the derived ages of the bars.