

Isolated massive star candidates in nearby star forming galaxies

Tuesday 29 October 2024 14:40 (5 minutes)

The debate on whether star formation of massive stars always occurs clustered or could also happen in isolation is still open. Although small in numbers, massive stars strongly affect the environment around them: they can stop or trigger star formation, reshape the distribution of the gas around them and enrich the ISM due to supernova events or stellar winds. Thus, understanding how frequently high-mass stars can form in isolation in sparse density environments becomes extremely important. So far this has mostly been studied in only three Local Group galaxies: the Milky Way and the Magellanic Clouds. All three galaxies show a fraction of seemingly isolated massive stars that do not appear to be part of even very low-mass clusters nor can be explained as runaways or walkaways.

In order to shed light onto this open question, we are undertaking a systematic survey of other star-forming galaxies in the Local Volume to address this question with better statistics, using high-resolution photometry from two UV-optical Hubble Space Telescope legacy surveys, GULP and LEGUS. In this poster presentation, I will mainly focus on the spiral galaxy NGC 4242 and compare our findings to the Local Group.

Primary author: FACCHINI, Pietro (Zentrum für Astronomie der Universität Heidelberg, Astronomisches Rechen-Institut)

Co-authors: Dr PASQUALI, Anna (Zentrum für Astronomie der Universität Heidelberg, Astronomisches Rechen-Institut); Prof. GREBEL, Eva (Zentrum für Astronomie der Universität Heidelberg, Astronomisches Rechen-Institut)

Presenter: FACCHINI, Pietro (Zentrum für Astronomie der Universität Heidelberg, Astronomisches Rechen-Institut)

Session Classification: Contributed posters - Flash Talks