

MAIN-SEQUENCE STARS MASQUERADING AS YOUNG STELLAR OBJECTS IN THE CENTRAL MOLECULAR ZONE

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(Dated: July 10, 2014)
Contribution at the GESF 2014

ABSTRACT

In contrast to most other galaxies, star-formation rates in the Milky Way can be estimated directly from Young Stellar Objects (YSOs). In the Central Molecular Zone (CMZ) the star-formation rate calculated from the number of YSOs with 24 micron emission differs by a factor of ten from traditional methods that are based on diffuse emission (e.g. free-free). Whether this effect is real or due to incorrect estimates has not been previously understood. On one hand, the different methods may trace different time-scales and would disagree if the star-formation was episodic. On the other hand the estimates based on YSOs could for example be heavily contaminated by more evolved objects. Many of the YSOs selected at 24 microns and used to measure the star-formation rate do not have counterparts in Herschel observations, suggesting they may not be as young as previously assumed. In this talk I will present radiative transfer modelling results which suggests that, indeed, main-sequence O and B stars in a constant ambient medium can mimic YSOs at 24 microns, while being faint or undetected at Herschel wavelengths. Using these modelling results we estimate the fraction of misclassified "YSOs" and derive a corrected star-formation rate for the CMZ.

FURTHER NOTE

Dear SOC & LOC committee of the GESF 2014, if it is not possible to still contribute by giving a talk, I would like to present a poster if possible, since I am travelling to the conference anyway.

Yours sincerely,

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