

NEW MODELS FOR MASSIVE STAR POPULATIONS IN YOUNG STARBURSTS

Summary of the models and applications

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Using the latest stellar evolution models, theoretical stellar spectra, and a compilation of observed emission line strengths from Wolf-Rayet (WR) stars, we have constructed evolutionary synthesis models for young starbursts (Schaerer & Vacca 1997; see also Schaefer 1996). We provide detailed predictions of UV and optical emission line strengths for both the WR stellar lines and the major nebular hydrogen and helium emission lines, as a function of several input parameters related to the starburst episode.

Our models represent a significant improvement in the modeling of starburst regions; they are ideally suited to analysis of massive star populations in young starbursts, emission line galaxies, extragalactic H II regions, BCDG, etc. They can be used to determine the properties of the burst episode, such as the age, duration, star formation rate, IMF etc., and can be used to investigate the variation in these starburst properties as a function of environment and metallicity.

The results from our models are available in electronic form (see <http://www.stsci.edu/ftp/science/starburst>).

References

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