

Bow-shock nebulae of run-away stars

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Stars with high (≥ 30 km/s) space velocity (run-away) stars are the natural product of close passages of stars/double-stars in dense cores of star clusters and associations. Alternately, they can gain they high velocities as kick in SNe explosions and passages near a massive Black Hole. The high speed, often supersonic motion of these stars and their winds interact with the interstellar medium and can lead to observable bow shock structures. Using optical and IR imaging and spectroscopy it is possible to use the bow shock structures to derive properties of the stellar wind, the motion of the star and surrounding interstellar medium. Together with the very rare main sequence wind blown ("interstellar") bubbles around massive stars, bow shocks allow insights into the conditions in the astrospheres/stellarspheres of a wide variety of stars.