

Distribution of very young stellar clusters in grand-design spirals

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Abstract. Many grand-design spiral galaxies display strings of knots along their arms on K -band images. Near-infrared (NIR) spectra and broad-band colours of such knots have identified them as very young, massive stellar complexes. The low absorption in the NIR makes it possible to derive complete statistics of such complexes and thereby estimate the associated star-formation rate. We have obtained deep NIR maps of eight grand-design spirals using *VLT/HAWK-I* and identified massive complexes with ages of < 10 Myr using NIR colour–colour diagrams. The youngest, most massive complexes are well-aligned and concentrated in the arm regions of the grand-design galaxies with strong spiral perturbations. Their absolute magnitudes have a bright tail reaching almost $M_K = -16$ mag. Both the fraction of young to old sources and the ratio of diffuse to more compact objects suggest a dependence on the strength of the spiral pattern in the host galaxy.

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