

# LUPUS LOOP: A POSSIBLE CASE OF STAR FORMATION INDUCED BY A SUPERNOVA EVENT?

M. Arnal<sup>1,2</sup>

Instituto Argentino de Radioastronomía, and  
Observatorio Astronómico de La Plata  
Argentina

G. Dubner

Instituto Argentino de Radioastronomía, and  
Instituto de Astronomía y Física del Espacio  
Argentina

Expanding shock waves like those arising from supernova remnants and strong stellar winds are usually proposed as a triggering mechanism for star formation, through the interaction between the expanding shock wave and dense surrounding clouds. Neutral hydrogen observations at 21cm carried out towards the Lupus Loop SNR (Colomb and Dubner 1982) have clearly shown the existence of two concentric cold shells around the radio-remnant, the outer one probably formed by the stellar wind of an early-type star (probable SN progenitor?), whilst the inner one is likely to be associated with the supernova event itself.

Because a statistically significant excess of early-type stars is noticed in the outskirts of the expanding shells, a UBV-photometric study of nearly 150 stars earlier than A5 has been carried out using the Lowell 0.6m telescope of CTIO. The ultimate goal of this investigation is to establish whether or not a genetic link between the expanding shells and the early-type stars can exist.

The following preliminary results were obtained: 1) A real grouping of early-type stars does exist projected against the south-eastern border of the outer cold shell, where the HI column density contours show the steepest gradient; 2) Assuming that all the member stars are main sequence ones, and using the mean evolution deviation curve method, a distance of  $(870 \pm 80)$  pc is derived for the group.

The obtained results favour the existence of a physical relationship between the outer expanding shell and the early-type stars grouping.

## REFERENCES

Colomb, F.R., and Dubner, G.M. 1982, *Astron. Astrophys.* **112**, 141.

Marcelo Arnal and Gloria Dubner: Instituto Argentino de Radioastronomía, Casilla de Correo 5, 1894 Villa Elisa, Prov. de Buenos Aires, Argentina.

1. Visiting astronomer of Cerro Tololo Inter-American Observatory, operated by the Association of Universities for Research in Astronomy, Inc., under contract with the National Science Foundation.

2. Member of the Carrera del Investigador Científico of the CONICET, Argentina.