## VLA OBSERVATIONS OF THE SUSPECTED HH-OBJECT GGD37

V.A. Hughes

Astronomy Group, Department of Physics, Queen's University
Kingston, Ontario Canada

High resolution VLA observations (1") have been made of the Cep A region, which includes a region of early star formation, possibly as young as 1000 yrs, and an adjacent nebulosity which includes the suspected HH-object GGD37. Radio continuum emission is detected from the latter, which is also situated in a region where the molecular lines due to CO have a red-shifted component with velocity 25 km $s^{-1}$. The results and a model for the region will be described.

## THE RADIO H II REGIONS ASSOCIATED WITH CEP A

V.A. Hughes

Astronomy Group, Department of Physics, Queen's University
Kingston, Ontario Canada
and

J.G.A. Wouterloot
Sterrewacht, Leiden, The Netherlands

Recent observations of Cep A at λ21 cm, using the Westerbork Synthesis Radio Telescope, have shown the presence of two main H II regions. One contains compact H II regions and $H_2O$ and OH masers, and the other contains the supposed Herbig-Haro Object GGD37. The results should clear up some confusion regarding Cep A.

## ON THE CONTRIBUTIONS OF THE ORION REFLECTION NEBULOSITY TO THE CONTINUOUS *UV* SPECTRUM OF THE HERBIG-HARO OBJECTS HH 1 AND HH 2, AND OF THE C-S STAR

R. Mundt

Max-Planck-Institut für Astronomie, Heidelberg, FRG
and

A.N. Witt

Ritter Astrophysical Research Center
The University of Toledo, Toledo, OH, USA

The published *UV* continuum spectra of the Herbig-Haro objects HH 1, HH 2, and of the environment of the Cohen-Swartz (C-S) star are severely contaminated by the light from the Orion Reflection Nebulosity (ORN). The ORN was discovered photographically by Carruthers and Opan (*Ap. J. (Letters)*, 212, L27, 1977) and extends roughly over the entire Orion constellation with a radius of 10°-15°. HH 1

and HH2 are located about 3.5° south of its center. The *UV* surface brightness of the ORN in the vicinity of HH 1, 2 is approximately known from measurements with the OAO-2 satellite. Due to the spatial variations of the surface brightness of the ORN its contribution to the measured continuum fluxes of HH 1, 2 and the C-S star environment is not well known. However, the surface brithness derived from the OAO-2 measurements strongly suggest that the *UV* continuum found in the environment of the C-S star (Böhm and Böhm-Vitense 1982, *Ap. J. (Letters)* 263, L35) can be fully accounted by the emission from the ORN. This also explains why this continuum was observed over the full size of the *IUE* aperture.

The contamination of the continuous spectrum of HH 1 and HH 2 by the ORN is most important at short wavelengths ($\lambda \lesssim 1500$ Å). At these wavelengths the data suggest contributions to the published spectra in the order of 30-50%. At longer wavelengths ($\lambda \gtrsim 1900$ Å) contributions of about 20% are suggested. We note that the ORN can never explain all the continuous emission from HH 1, 2 since their *UV* continuum did not fill the full 23"×10" *IUE* aperture. More reliable determinations of the surface brightness of the ORN in the immediate vicinity of HH 1, 2 are highly desirable. This can easily be done by obtaining long duration *IUE* exposures in empty fields close to these objects. Without such determinations any detailed discussions on the origin of the continuous emission in HH 1, 2 are premature.

A paper presenting these results in more detail has been submitted to *Ap. J. (Letters)*.