RevMexAA (Serie de Conferencias), **12**, 162–162 (2002)

Ionized Gaseous Nebulae (Mexico City, 21-24 November 2000)
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PN G291.4–00.3: A NEW TYPE I PLANETARY NEBULA[1]

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In the vicinity of the southern hemisphere giant H II region NGC 3603 we discovered a new planetary nebula: PN G291.4−00.3 located at $\mathrm{RA_{J2000.0}} = 11^{h}14^{m}32\overset{s}{.}1 \pm 0\overset{s}{.}3$ and $\mathrm{DEC_{J2000.0}} = -61^{\circ}00'02'' \pm 1''$. Monochromatic images reveal a central ring-like structure with onsets of arc-like filaments which might outline a bipolar outflow. Optical imaging and spectroscopy confirm that the emission line object found on WFI images is a genuine planetary nebula, and that it is a high-excitation bipolar Type I object.

PN G291.4−00.3 (Fig. 1) was discovered serendipitously on wide field CCD exposures centered on the giant H II region NGC 3603. These images were obtained with the Wide Field Imager mounted at the ESO/MPG 2.2-m telescope on La Silla under moderate seeing conditions.

Its appearance consists of a roughly north-south elongated ring-like structure with short onsets of spiral-like arms at the northern and southern tips. The central ring appears to be tilted by 50° to 55° against the plane of sky. Its diameter is about $5\overset{''}{.}4$ along the major axis. The arc- or spiral-like shaped filaments might be indicative for a wide-angle hourglass-shaped bipolar outflow (P.A. $\sim 80°$).

Spectroscopic observations were performed using EFOSC 2 at the ESO 3.6-m telescope. The spectrum

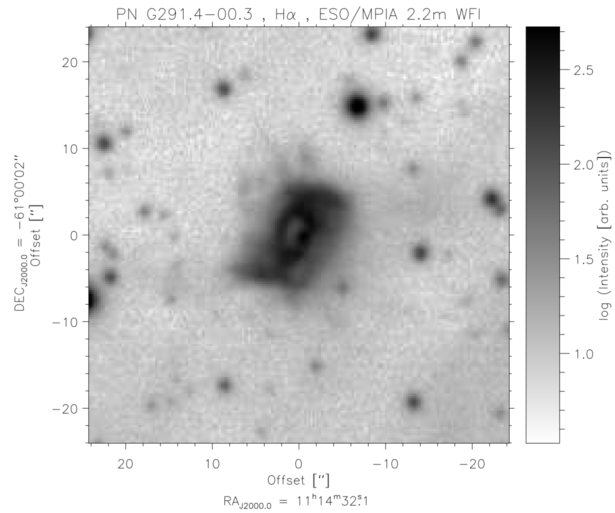

Fig. 1. Hα narrow band image obtained with the WFI mounted at the ESO/MPG 2.2-m telescope.

exhibits a very strong He II λ4686 line, but also [S II] lines. Plasma diagnostics shows helium and nitrogen are enriched, while oxygen is depleted. Thus PN G291.4−00.3 is a high-excitation bipolar planetary nebula of Type I. The measured extinction and the radial velocity obtained from the Hα and [N II] lines of $+5 \pm 1.5\,\mathrm{km\,s^{-1}}$ indicate a distance of about 5.5 kpc.

S. Durand thanks PRONEX/Finep for financial assistance. This work is described in greater detail in Nürnberger et al. 2001.

REFERENCES

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