Circular No. 8759

Central Bureau for Astronomical Telegrams
INTERNATIONAL ASTRONOMICAL UNION
Mailstop 18, Smithsonian Astrophysical Observatory, Cambridge, MA 02138, U.S.A.
IAUSUBS@CFA.HARVARD.EDU or FAX 617-495-7231 (subscriptions)
CBAT@CFA.HARVARD.EDU (science)
URL `http://cfa-www.harvard.edu/iau/cbat.html` ISSN 0081-0304
Phone 617-495-7440/7244/7444 (for emergency use only)

RINGS OF SATURN (R/2006 S 1, R/2006 S 2, R/2006 S 3, R/2006 S 4)

C. C. Porco, CICLOPS, Space Science Institute, Boulder; and the Cassini Imaging Science Team report the sighting of several new rings around Saturn. One new diffuse ring, R/2006 S 1, has been found at an orbital distance of $\sim$ 151500 km, coincident with the co-orbital satellites, Saturn X (Janus) and XI (Epimetheus) with a radial width of $\sim$ 5000 km. Another new diffuse ring, R/2006 S 2, has been found coincident with the tiny moon Saturn XXXIII (Pallene; *IAUC* 8389), at an orbital distance of $\sim$ 212000 km and radial width of $\sim$ 2500 km. Two other newly sighted rings have been seen within the Cassini division. R/2006 S 3 is located in the outer gap of the Cassini division at an orbital distance of 119930 km, with a radial width of $\sim$ 50 km. Finally, a very narrow, discontinuous, and tenuous ringlet, R/2006 S 4, has been seen in between two broad bands in the Cassini division, at an orbital distance of 118960 km; its width is $\sim$ 6 km. R/2006 S 3 appears to have substantial numbers of small particles as it brightens considerably at high-phase-viewing geometries.

SUPERNOVAE 2006iv, 2006iw, 2006ix, 2006iy, 2006iz, 2006ja

An apparent supernova (2006iv) has been discovered on unfiltered CCD images by Grzegorz Duszanowicz (Åkersberga, Sweden, 0.32-m f/3.1 reflector); he measured the position of the new object to be $\alpha = 11^{\rm h}48^{\rm m}12^{\rm s}.35$, $\delta = +54^{\circ}59'14''.6$ (equinox 2000.0), which is $7''$ east and $18''$ south of the center of UGC 6774. Approximate magnitudes for 2006iv from Duszanowicz's unfiltered images: Jan. 3.145 UT, [18.5; Sept. 13.989, [18.0; 22.92, 16.7; Oct. 5.875, 15.9 (discovery); 7.87, 15.9.

Five additional faint supernovae (2006iw–2006ja; all in the magnitude range g = 20.4–22.6) have been reported by J. Frieman on behalf of the SDSS II collaboration (details on *CBETs* 663 and 667); 2006iw and 2006ix are type-II supernovae, 2006iy and 2006iz are type-Ia supernovae, and 2006ja is a probable type-Ia supernova.

COMET C/2006 P1 (McNAUGHT)

Improved orbital elements (cf. *IAUC* 8737) from *MPC* 57794:

$$\begin{array}{llll} T = 2007\ \text{Jan. } 12.8217\ \text{TT} & \omega = 155^{\circ}.9746 & & \\ & \Omega = 267.4139 & \left.\right\} 2000.0 & \\ q = 0.170773\ \text{AU} & i = 77.8512 & & \end{array}$$

  Daniel W. E. Green