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SUPERNOVAE 2005ao, 2005ap, 2005aq

Three supernovae have been found on unfiltered CCD images: 2005ao by T. Puckett and T. Crowley (cf. *IAUC* 8488; 0.50-m automated supernova patrol telescope); 2005ap by R. Quimby, P. Mondol, P. Hoeflich, J. C. Wheeler (all at the University of Texas), and C. Gerardy (Imperial College) using the 0.45-m ROTSE-IIIb telescope at McDonald Observatory; and 2005aq by J. Graham and W. Li (LOSS/KAIT; cf. *IAUC* 8484).

SN	2005 UT	α_{2000}	δ_{2000}	Mag.	*Offset*
2005ao	Mar. 7.43	$17^h44^m49^s.64$	$+61^\circ54'28''.1$	16.7	$5''.3$ E, $10''.9$ S
2005ap	Mar. 3.30	13 01 14.84	+27 43 31.4	18.5	$3''.5$ W, $3''.4$ N
2005aq	Mar. 7.13	4 31 38.82	− 4 35 06.8	17.3	$1''.7$ E, $10''.8$ N

Approximate unfiltered CCD magnitudes, by the respective discoverers unless otherwise noted: SN 2005ao in NGC 6462, 2002 Feb. 13 UT, [20.0 (Puckett); 2003 Apr. 2, [20.0 (Puckett); 2005 Mar. 8.02, 16.6 (G. Sostero, Remanzacco, Italy). SN 2005ap, 2004 Dec. 15, [18.8; 2005 Jan. 14, [18.8; Mar. 4.29, 18.5. SN 2005aq in NGC 1599, Feb. 2.16, [18.0; Mar. 8.12, 17.2.

Quimby adds nothing is visible on the Digitized Sky Survey at the location of 2005ap, and a spectrum (range 430–890 nm), obtained on Mar. 7.46 with the 9.2-m Hobby/Eberly Telescope (+ Marcario Low-Resolution Spectrograph) by B. Roman and V. Riley, shows a flat continuum with broad absorption at 526 and 557 nm; there are no features that would suggest a Galactic source. The spectrum is similar to the recent CfA spectrum of 2005an (cf. *IAUC* 8491), but of higher S/N; as with 2005an, Quimby *et al.* believe that SN 2005ap is an early type-II supernova, but given the general lack of distinct features, they cannot associate it with a template.

M. Modjaz, R. Kirshner, and P. Challis, Harvard-Smithsonian Center for Astrophysics, report that a spectrum (range 340–730 nm) of SN 2005ao, obtained on Mar. 8.52 UT by H. Hao with the F. L. Whipple Observatory 1.5-m telescope (+ FAST), shows it to be a type-Ia supernova with a spectral-feature age (Riess *et al.* 1997, *A.J.* **114**, 722) of ~ -3 ($\pm$ 2) days before maximum light. The supernova expansion velocity, derived from the minimum of Si II (rest 635.5 nm) and adopting the NED recession velocity of 11514 km/s for the host galaxy, is $\sim$ 11000 km/s. They add that a spectrogram (range 350–740 nm) of SN 2005aq, obtained on Mar. 8.11 UT, shows it to be a type-IIn supernova; the spectrum consists of strong, intermediate-width (FWHM 800 km/s) Balmer emission lines with broad wings that are superposed on a nearly featureless and flat continuum (assuming the NED recession velocity of 4042 km/s for the host galaxy).

2005 March 8 *Daniel W. E. Green*