SUPERNOVA 2000ck IN IC 4355

S. Benetti, R. Cosentino, J. Licandro, F. Paulli, M. Pedani, G. Trancho, A. Zacchei, and E. Giro, Telescopio Nazionale Galileo (TNG); P. Conconi, G. Crimi, and E. Molinari, Osservatorio Astronomico di Brera; and A. Caproni, M. Comari, C. Corte, S. Monai, and M. Pucillo, Osservatorio Astronomico di Trieste, report: \A fully reduced CCD spectrum (range 333.3–722.3 nm, resolution 1 nm), obtained on May 31.03 UT with the TNG re\'actor (+ D.o.io.res spectrograph), tentatively shows SN 2000ck (cf. IAUC 7431) to be a type-II supernova near maximum light. The spectrum is dominated by a very blue continuum ($T_{bb}$ » 17 000 K), upon which we identify (even if faint) H$^\text{±}$, H$^\text{°}$, and H$^\text{¯}$ lines with relatively narrow P-Cyg profiles (from which we derive an expansion velocity of » 6200 km/s). There is no sign of a broad H$^\text{®}$ feature. From weak interstellar lines due to the Na I D absorption feature (EW » 0.12 nm) seen at » 605.3 nm, we derive a parent-galaxy recession velocity of » 8150 km/s."

S. Jha, P. Challis, and R. Kirshner, Harvard-Smithsonian Center for Astrophysics; and P. Garnavich, University of Notre Dame, write: \Spectra of SN 2000ck, taken by P. Berlind and Garnavich on May 27.4, 28.3, 29.2, 30.2, and 31.3 UT with the Whipple Observatory 1.5-m telescope (+ FAST spectrograph), show it to be an unusual type-II supernova at an early epoch. The spectra exhibit a blue continuum with narrow emission lines of [O II], H$^\text{°}$, H$^\text{¯}$, [O III], [O I], [N II], H$^\text{®}$ and [S II] from a superimposed H II region at the recession velocity of IC 4355 (8048 km/s in the NASA/IPAC Extragalactic Database). From the supernova itself, there are broad but very weak absorption features of H$^\text{±}$ (expansion velocity 6700 km/s) and He I (rest 587.6 nm, expansion velocity 5300 km/s) that have developed only very slowly. Strong interstellar Na I absorption (with equivalent width 0.1 nm) at the host-galaxy redshift implies sign\' cant extinction by dust."

A. V. Filippenko and A. C. Coil, University of California at Berkeley, communicate: \A CCD spectrum (range 320–1000 nm) of SN 2000ck obtained on May 31 UT with the Shane 3-m re\'actor at Lick Observatory exhibits a blue, nearly featureless continuum. It resembles the spectrum of the peculiar type-II supernova 1993J) at very early times (Filippenko 1997, ARAA 35, 309), but the type-II classification is not yet certain."

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Visual $m_\text{v}$ estimates by N. Biver, Oahu, HI (0.26-m re\'ector): May 25.61 UT, 11.3; 29.61, 11.0.

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