

*Appendix:* The following cover letter was submitted with the Keck proposal for 2001B, requesting zero time in that semester but asking that time be pooled for the current proposed semester 2002A.

Note to the TAC: **Why is this proposal asking for zero time (again)?**

Over the next several semesters, we are continuing a somewhat larger-scale project, discovering and studying Type Ia supernovae at the highest-yet redshift range,  $z = 1.0 - 1.3$ . This work requires large amounts of coordinated telescope time: the discoveries will be made with the CFHT, CTIO 4-m, and Subaru telescopes, the spectroscopy will be performed on the Keck telescope (pending approval of this and subsequent proposals), and the follow-up photometry will be primarily with the Hubble Space Telescope (76 orbits have been awarded for this work and scheduled for Spring 2001, and 100 orbits have been awarded for next year's work).

In order to coordinate with the HST follow up, it is necessary to guarantee sufficient numbers of supernovae all within a degree of a pre-chosen pointing. If the supernovae are not discovered, then the HST points at empty space for the pre-allocated exposures over the following three weeks, and those orbits would be wasted; So far, we have never failed on one of these "supernova guarantees." The science is now requiring us to study SNe Ia at higher redshifts than the previous work (as explained in the attached proposal), but this means that the Keck telescope spectroscopy takes significantly more time to confirm each supernova (and to screen out some comparably faint, but lower redshift supernovae). Furthermore, only the Keck telescope is now capable of this  $z > 1$  work (see below for a comparison with the VLT spectroscopy capabilities).

The SN discoveries, too, requires larger amounts of telescope time to guarantee sufficient numbers of supernovae, so in order to coordinate all of these telescope time requirements we are proposing the following large-project mode of telescope proposal and scheduling. This is clearly science that will not work with too little telescope time scheduled once a semester, so instead we are requesting sufficient telescope time scheduled once a year. (Based on just Poisson statistics alone, for such a small sample, the expectation value of wasted HST orbits would be twice as large if this program were divided into two semesters; the comparison is even worse if typical observing conditions are factored in.) For the coming year -- and this current year, too -- the most appropriate time for the run will be in late Spring (avoiding the most popular times of that semester). We would like to request a 6 dark night allocation for that period, rather than smaller allocations for the Fall and Spring semesters, which would be much less effective for the science goal. This is why our current request, for the Fall 2001 semester, is for zero nights.

Since we are requesting time about a year-and-a-half from now (and zero for this coming semester), it seemed a little early to give the usual full proposal, especially since we will have a telescope run this coming April that will provide further information for this work. In consultation with Dr. Miller, we have therefore agreed to provide this cover letter for these off season proposals, along with a copy of our year-long proposal from last semester, spelling out the project's science goals, feasibility, and unique need for Keck. Ideally, this will allow the TAC to plan for (and, ideally, allocate) a larger allocation in the Spring 2002 semester. (In anticipation, perhaps some observing from that semester can be shifted to the Fall 2001 semester, in which we are not requesting time for the program.) We will then also submit an update proposal for this large-scale program to the Fall meeting of the TAC.