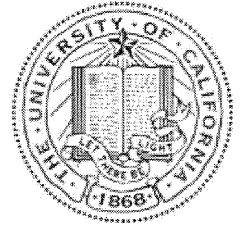




California Institute  
of Technology

University of  
California



## **NEWS RELEASE**

*For Immediate Release*  
*December 6, 2007*

### **Gordon and Betty Moore Foundation Commits \$200 Million Support for Thirty-Meter Telescope**

PASADENA, Calif — The California Institute of Technology and the University of California have received a \$200 million commitment over nine years from the Gordon and Betty Moore Foundation toward the further development and construction of the Thirty-Meter Telescope (TMT). Funding under this commitment will be shared equally between the two universities, with matching gifts from the two institutions expected to bring the total to \$300 million. When built, TMT will be the largest telescope in the world.

The telescope design is being developed by a U.S.-Canadian team that includes the California Institute of Technology, the University of California, and the Association of Canadian Universities for Research in Astronomy (ACURA), with completion of the design development expected by March 2009.

"The impressive scope of this project has now been matched by the extraordinary generosity from the Gordon and Betty Moore Foundation. Caltech and the UC System are thrilled with the foundation's confidence in the project, and we and our partners are eager to create a history-making tool that will allow us to see farther into the universe than ever before," said Caltech President Jean-Lou Chameau.

With the TMT, astronomers will be able to locate and analyze the light from the first stellar systems born soon after the Big Bang, determine the physical processes governing the formation and evolution of galaxies like our own Milky Way, study planet formation around nearby stars, and make observations that test the fundamental laws of physics. However, it is the unexpected discoveries that TMT will make that will likely be the most exciting.

"This is a tremendous investment by the Gordon and Betty Moore Foundation in a path-breaking scientific tool with great potential for unlocking new insights about the nature of the universe," said UC President Robert C. Dynes. "UC and Caltech are pleased that the Foundation has recognized the tremendous research capacity of our institutions, and we look forward to the exciting findings that this telescope will deliver in the future."

TMT will consist of a primary mirror with 492 individual 1.45-meter segments that together measure 30 meters in diameter, providing more than eight times the collecting area of the current largest telescope. All segments will be under precision computer control so that they will work together as a single mirror. This revolutionary technology was developed for the 10-meter mirrors in the two Keck telescopes in Hawaii.

The TMT will not only be the largest optical-infrared telescope in the world, but it will also be at the forefront of technology in virtually every aspect of its design. Adaptive optics (AO) will allow the TMT to achieve a resolution superior to that of the Hubble Space Telescope.

The TMT AO system will use six laser beams to create six luminous spots in a layer of sodium atoms high in Earth's upper atmosphere. These bright artificial stars serve as references for measuring the turbulence in the atmosphere, allowing the AO system to compensate for blurring of starlight by Earth's fluctuating atmosphere. This technology was pioneered at the Lick Observatory 3-meter telescope and has been developed further at the Palomar 5-meter and Keck 10-meter telescopes.

TMT is a collaboration between Caltech, UC, and ACURA, with significant work being done by industry and by university teams studying instrument designs. The project office is in Pasadena, California.

The Foundation has already granted \$50 million in support of a \$79 million design-development phase that has been under way since April 2004. ACURA and the Association of Universities for Research in Astronomy also contributed to the design-development phase.

For more information on the project, see <http://www.tmt.org>.

### ***About Caltech***

One of the most highly regarded institutions of science and engineering in the world, Caltech is home to some of the best students and faculty who share one mission: to create the innovative, unparalleled science and technology of tomorrow. Caltech is a small, focused institution, providing one of the best student-to-faculty ratios among academic institutions. Caltech enrolls about 2,000 undergraduate and graduate students total. Because of its size, it provides an exceptional opportunity for a comprehensive, interdisciplinary scientific research experience for its students, and access to a faculty and alumni holding over 32 Nobel Prizes. Caltech also operates outstanding facilities including the Jet Propulsion Laboratory and the Palomar and Keck observatories.

### ***About the University of California***

The University of California, founded in 1868, is a system of 10 campuses with a mission of teaching, research and public service. With 208,000 undergraduate and graduate students, UC is the world's premier public research university. UC has five medical schools, three law schools and the nation's largest continuing education program. Forty-nine researchers affiliated with UC have been awarded Nobel Prizes; 16 of these prestigious awards have been won since 1995. UC also has 358 members in the National Academy of Sciences, and UC-affiliated researchers have received 48 Medals of Science since Congress created the award in 1959. UC is involved in the management of three national laboratories on behalf of the Department of Energy – Lawrence Berkeley, Los Alamos and Lawrence Livermore National Laboratories. For more news and information about the University of California:  
<http://www.universityofcalifornia.edu>

### ***About The Association of Canadian Universities for Research in Astronomy***

The Association of Canadian Universities for Research in Astronomy is an organization of Canadian universities dedicated to the advancement of research and teaching in astronomy and astrophysics in

Canada. It assists in coordinating large-scale national initiatives of its member institutions, advocates for the priorities in the Long Range Plan for Astronomy, and is a liaison between Canadian member universities and international partners in international and world observatories. For more news and information about ACURA, visit <http://www.universityastronomy.ca>

**About the Gordon and Betty Moore Foundation**

The Gordon and Betty Moore Foundation, established in 2000, seeks to advance environmental conservation and cutting-edge scientific research around the world and to improve the quality of life in the San Francisco Bay Area. For more information, visit <http://www.moore.org>.

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