



You are invited to a workshop on
"Motion and Forces"
Millikan Laboratory, Pomona College
Saturday, February 21, 2009



General Information:

There will be a continental breakfast available at the beginning of the day. Dr. Luke Donev from Cornell University will join Prof. Tanenbaum to lead activities. We will explain the opportunities and resources available to teachers through the CIPT. There will be lectures, tours and a lunch on the Pomona Campus.

Registration Form is online at:

<http://www.cns.cornell.edu/cipt/workshops.html>

Schedule

8:30 – 9:00 a.m.	Registration and Continental Breakfast
9:00 – 9:20 a.m.	Prof. David Tanenbaum, "Cornell Institute for Physics Teachers."
9:20 – 10:00 a.m.	Prof. Dwight Whitaker, "Video Analysis: Research at High Speeds."
10:15 – 11:30 a.m.	Activity – "Physics of Rock Climbing: Forces and Vectors"
11:30 – 12:15 p.m.	Lab and Campus Tour
12:15 – 1:15 p.m.	Lunch – <i>Frery Dining Hall</i>
1:30 – 2:45 p.m.	Activity – "Stunt Car Challenge: Projectile Motion and Photogates"
2:45 – 3:15 p.m.	Prof. David Tanenbaum, "Video Analysis: In the Classroom"
3:15 – 3:30 p.m.	Closing and Evaluation

Hands on Activities:

- **"Physics of Rock Climbing"** – When rock climbing, anchors are used to guide and support a rope attached to the climber. It is critical to set up anchors so that in the event of a fall, the forces generated on the anchor will not cause it to fail. Students design and optimize various anchor systems to support a "climber" represented by a 10 N weight. Real climbers depend on belaying partners and anchors to control the rope should they fall. If either the anchor or the belayer fails, the result can be catastrophic.
- **"Stunt Car Challenge"** – We see examples of Projectile Motion in every aspect of our lives; a football punt or kick, a home run in baseball, a 9-iron golf shot or a stunt driver driving his car off a ramp. In this lab, we will find out how projectiles fired at angles behave, what distance they travel given a particular angle and using real-world applications to confirm our mathematical calculations of time and distance.

There is no charge for the workshop (refundable deposit only). Breakfast and lunch will be provided. Five and one-half contact hours will be awarded for participation.