Seven Bakersfield College students presented posters at the spring 2010 meeting of the Mathematical Association of America. This year’s meeting of the Southern California/Nevada Section was held on April 10 at Harvey Mudd College. The student poster session consisted of thirty-two projects presented by students from UC’s, California State Universities, Two-year colleges, and private schools.

**Gaussian Smoothing**

Antonio Gonzalez, Adi Prieto, Sarah Stockton

\[ \sum F_n = ma_n = \frac{mv^2}{p} \]

There has been renewed interest in women’s roller derby in recent years. This project will examine 3D acceleration of the blocker and jammer positions, utilizing real world data collected from Bakersfield’s own Diamond Divas Roller Derby team.

*Faculty Advisors: Liz Rozell, Natalie Burzstyn, Rick Darke*
Every simple harmonic oscillator, such as a mass on a spring or a clock’s pendulum, exhibits a natural frequency. This frequency determines the time it takes the oscillator to complete one full revolution. This project investigates how forcing a pendulum out of its natural frequency using an electromagnet will decrease the amplitude of its path.

*Faculty Advisor: Rebecca Head*
Dimensions are an abstract concept that has fostered numerous theories and definitions. From fractal dimensions to a fourth dimension of space, the limits are beyond our imagination. We present these different definitions and acknowledge the validity of their claims. Amid this, we present the “Hillberry-Howard Definition” in which we consider the fourth dimension to be a dimension of time, utilizing coordinate planes and the observable dimensions to aid us.

Faculty Advisor: Rebecca Head
This project investigates the mathematics and physics associated with roller coasters’ most thrilling and forceful parts. Using vector calculus we can determine components of acceleration associated with the G-forces experienced by the riders. We can then compare those forces with other situations involving G-forces. In particular we are observing the hyper coaster Goliath at the nearby amusement park Six Flags Magic Mountain.

Faculty Advisor: Rebecca Head
This project looks at a female body while doing what is known as a “pencil” turn in dance. We’ve modeled the body by combining different surfaces and have found the different moments of inertia for various turning positions. We were also able to compare the volume of the body graphed and the actual body to see how accurate we were in our development of the graph.

Faculty Advisor: Rebecca Head
Participants and Friends from Bakersfield College

Back Row: David Baldwin, Ellyce Baldwin, Katie Metz, Pat Serpa