



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>Peter K. Blanchard</b>	<b>Project Number</b> <b>J1505</b>
<b>Project Title</b> <b>Stellar Parallax</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of my project was to test stellar parallax theory, a method used to determine the relative distance of stars, through a series of observations taken on a football field.</p> <p><b>Methods/Materials</b> To test parallax, I set up a board with a grid on it and had an assistant place two very small objects at different distances from the grid. Then I moved one hundred meters from the grid and used a telescope to record observations from points two meters apart. I took two sets of observations: the first observations were taken at night and recorded using a digital web camera and laptop computer; and the second set of observations were taken during the day and recorded by hand on graph paper. For each observation, I measured, in arc seconds, movement from one position compared to the other position.</p> <p><b>Results</b> The results from the first set of observations taken at night were inconclusive due to the poor quality of images I was able to obtain from the web camera. However, in the daytime observations, I was able to accurately determine for each set of data, which object was closer and calculate the relative distances in arc seconds.</p> <p><b>Conclusions/Discussion</b> For years, astronomers have used a method known as stellar parallax to determine the relative distance of stars. I set out to test parallax. Parallax is the apparent change in the position of a nearby object relative to a distant object when the observer moves to a new position. Astronomers use the opposite sides of the earth's orbit as the observation points, when measuring the relative distance of two stars. Through this land based experiment I proved that the concept astronomers use to calculate how far real stars are away from the earth is accurate.</p>	
<b>Summary Statement</b> I was able to construct an entirely land based experiment to test and prove that stellar parallax theory is an accurate method to measure the relative distance of stars from earth.	
<b>Help Received</b> My science teacher, Mr. Smith, loaned me his telescope, laptop computer and web camera as well as assisted in setting up the experiment on the school football field by placing the objects I would observe at distances unknown to me. My father helped type portions of my report.	