



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Maegan A. Lindsey	<b>Project Number</b>  31045
<b>Project Title</b> The Effects of Different Sealants on Titanium Dioxide Coated Solar Cells	
<b>Abstract</b> <b>Objectives/Goals</b> My objective was to find out which sealant sealed a nanocrystalline dye sensitized solar cell the best. <b>Methods/Materials</b> I made eight solar cells from a solar cell kit with tin dioxide coated conductive glass, nitric acid, titanium dioxide powder, graphite, iodide electrolyte, and a blueberry juice solution. I sealed two of the solar cells with crazy glue, two with caulking, two with nail polish, and two control cells (no sealant). Using the same light source and volt meter for each test, I tested each solar cell for electrical output each week for 6 weeks. Each week I tested the electrical output of each solar cell three times and recorded the results in my log book. <b>Results</b> After six weeks, the solar cells sealed with crazy glue had the highest electrical output, next was caulking, then the control (no sealant), and nail polish did the worst. <b>Conclusions/Discussion</b> I think the crazy glue did better than the other solar cell sealants because it is strong, so if the cell tries to shift, it would prevent it from slipping and keep out the corrosive oxygen. I also think that since it was clear, it let more light in. Because the crazy glue went farther into the solar cell than the others, it prevented gaps or such on the sides of the cell. If I were to do this project again, I would lengthen the time period to see which sealant held up better over an even longer period of time.	
<b>Summary Statement</b> My project was to test different sealants on solar cells.	
<b>Help Received</b> My mother helped with cutting paper and preparing the backboard. My teacher, Mr. Scofield, and my dad helped me with the idea for this project.	