



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Ali Valamanesh</b>	<b>Project Number</b> <b>S0624</b>
<b>Project Title</b> <b>Faraday's Second Law of Electrolysis</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Objectives/Goals: The purpose of my project is to investigate and verify Faraday's Laws of Electrolysis. also this investigation will manipulate the following factors: 1. Time 2. Concentration of the electronic medium 3. Concentration of the acidic catalyst 4. Voltage 5. Current 6. The optimum acid for the system 7. Temperature 8. Width of electrode. <b>Methods/Materials</b> I used a voltameter in a circuit with different solutions and measured the mass of the cathode of this electrolytic cell before and after the electrolysis. I changed different variables to check if the results vary too according to the laws. <b>Results</b> By varying different variables the mass transferred changed according to Faraday's Laws of Electrolysis, and the average mass transferred was near the theoretical value by a small percentage difference. <b>Conclusions/Discussion</b> According to the combination of Faraday's laws of electrolysis which is: $m = z I t$ while the electrochemical equivalent (z) for copper is constant, factors that directly affect the amount of copper transferred to the center copper plate are the current (I) and the time(t). The amount of copper transferred to the center plate is directly proportional to the current(I) and the time(t), which verified Faraday's Laws of Electrolysis.	
<b>Summary Statement</b> The project is based on Faraday's Laws of Electrolysis.	
<b>Help Received</b> I used the lab equipment at ribet academy under the supervision of science teacher Mr. John Shirajian	