

**Name:** Saul Martinez

**Major:** Physiology

**Faculty Mentor and Department:** Professor Fred Wudl, Chemistry and Biochemistry

University: University of California, Santa Barbara

Project Title: Synthesis and Characterization of Electron Accepting Conjugated Polymers

**Abstract:**

The growing need for more environmentally friendly materials has driven the development of organic substitutes for many traditionally inorganic electronics. These special organic materials can carry electrical current, convert light into electricity and be used as light sources. A common stumbling block in this field is that many organic compounds tend to preferentially carry either positive or negative charge carriers, which limits the effectiveness of the finished devices.

9,9'-bifluorenylidene, a small organic molecule, readily accepts additional electrons. However, when it is electrochemically polymerized it is reported to accept and give up electrons. Materials with this special property are referred to as ambipolar compounds, and are highly sought after in the field of photovoltaics. In this work, 9,9'-bifluorenylidene was synthesized, and the electropolymerization repeated, to try to create the ambipolar polymer on a larger scale for potential device applications. The synthesis was successful, yet the electropolymerization was found to be irreproducible.