



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

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Project Title
A Revolution in Electrostatic Motors

Abstract

Objectives/Goals
This project involves various stages and fields including Engineering/Mechanics, self-taught "C-Windows" Computer Programming, Electronics, and Mathematics. My primary goal is to improve the power electrostatic motors can transfer to demonstrate their usefulness and utilize the million to billion kilowatts of electrostatic charge our atmosphere contains. Existing designs are weak and impractical. I decided to build my own Computer Numeric Controlled (CNC) Router to cut precision models and compare my results to the strongest existing version, the Corona Discharge Motor, developed and tested by Professor Oleg D. Jefimenko and graduate students in the 1970's.

Methods/Materials
I started this research after believing I invented a new electric motor. Although I did not create the Electrostatic Motor, I decided to continue the historic efforts of scientists such as Benjamin Franklin and Professor Jefimenko. Last year I tested my first working designs, powered using an 18,000 Volt transformer. I measured output in Watts by having each motor pull a 5-gram weight. The established Corona Motor performed best. This year I wrote C-Language programs (without shortcuts) for my CNC Router and testing. I designed, built, cut, drilled, and soldered every aspect of the Router System. For the Regional Science Fair I still had to build versions of my aluminum cylinder rotor by hand to compare with last year's models. I am constructing precision models of my successful Aluminum Cylinder Motor along with additional designs. I also plan to measure Voltage and Amperage and design a tower to harness the atmosphere's energy.

Results
In last year's tests, the Corona Motor exhibited the most power, at 0.98 mW. This year, two series of test runs with hand-built models proved that my optimized Aluminum Cylinder Motor effectively produces 2.6 mW, over twice the power of the Corona Discharge Motor.

Conclusions/Discussion
Tests of precision models with rows of brushes surrounding their rotors should yield similarly successful results. Unlike my hand-cut models using only 2 brushes, this should greatly improve power, as Jefimenko demonstrated with his 4-in. Corona motor containing 40 brushes that produced 1/10 hp. I am confident the aluminum cylinder design, along with my tower concept and other ideas I have yet to test, will help meet the world's rising energy requirements and create "A Revolution in Electrostatic Motors".

Summary Statement
I have developed an electrostatic motor that has tested more powerful than existing designs, and has a potential for accessing a new alternative energy source.

Help Received
Plastic, metal, and funds donated by local companies and individuals; younger brother and mother provided minor assistance; Oleg D. Jefimenko provided some background information.