



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Darin Truong	Project Number J2216
Project Title Pure Silk: Does Electromagnetic Radiation Affect a Silkworm's Ability to Effectively Spin a Cocoon?	
Abstract Objectives/Goals The objective is to determine whether or not low level electromagnetic radiation affects the time taken for a silkworm to spin a cocoon. Methods/Materials Small silkworms ordered from a supply company were raised to spinning state in a storage container. As each silkworm started to spin a cocoon, it was separated into an individual 5.5 ounce soufflé cup. The time and date for the start time was recorded. The silkworms were observed every day, and when the cocoon was completely opaque, the time and date was recorded as the stop time. Results The times recorded somewhat reflected the hypothesis, but not as much as originally hypothesized. The silkworms that were exposed to low level electromagnetic radiation took somewhat longer than the control group to spin a cocoon. The average elapsed spinning time of the control group was 64 hours 52 minutes, and the average time for the electromagnetic radiation group was 81 hours 10 minutes, a 16 hour 18 minute difference. It was observed that when initially relocated to the source of electromagnetic radiation, the silkworms either stopped spinning or spun all over the container, as opposed to the normal figure 8 pattern. Conclusions/Discussion The control group silkworms spun cocoons somewhat faster than the EMF group. It was originally hypothesized that the EMF group would spin 50% faster than the control group. Though the results showed that the EMF group took longer than the control group to spin, the difference from the control group was only 25%. Overall, the EMF group took longer, but the electromagnetic radiation had only a minimal effect on the silkworms.	
Summary Statement Electromagnetic radiation affects a silkworm's time taken to spin a cocoon, but the effects are minimal, and are not very harmful in any way.	
Help Received Mother bought all the necessary supplies; father helped take photos; science teacher helped edit papers	