

**Santa Clara Valley Science and Engineering Fair Association**

P.O. Box 307, Los Altos, California 94023 • 650-856-1289

[www.science-fair.org](http://www.science-fair.org)

Celebrating Consecutive Regional Science Fairs Since 1960

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**MENTOR PROFILE FOR STUDENTS TO REVIEW**

Please fill in the appropriate information boxes below, and email this document to [rvwcwl@yahoo.com](mailto:rvwcwl@yahoo.com) for posting on our website [www.science-fair.org](http://www.science-fair.org).

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Last name: Cusack

First name: Sean

College and degree(s) earned: University of Pennsylvania: 2004 – B.S.E.: Chemical Engineering, 2004 – B.S.E.: Materials Science and Engineering

Email address: contact [mentors@science-fair.org](mailto:mentors@science-fair.org)

Web page (if applicable): N/A

Phone number and available hours to call:

Your background summary:

I have spent 5 years working as a Chemical Engineer in the pharmaceutical industry working to scale organic chemistry reactions to full plant scale from smaller laboratory scale. In addition, I have spent 2 years in the semiconductor industry where I optimized the production of experimental, high speed, high capacity RAM (redistribution layer/stacked die technologies for those familiar with the industry).

I have also spent about 4 months working in hydrogen/polymer fuel cell development for automotive applications (as a summer intern for General Motors). I spent an additional 6 month period constructing and using a tandem particle accelerator to eject deuterium atoms from different polymeric substrates (as an undergrad research assistant). The experience in particle physics led me to become a teaching assistant for quantum physics for 4 semesters during my undergraduate career.

Lastly, I have a fair amount of experience as a mechanical drafter, and am a hobbyist electronics and metal worker in my spare time.

Briefly write about your science and/or engineering interests:

My interests lie in uniting different disciplines of engineering and science to create better tools for research and development. I have recently been spending quite a bit of

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time interfacing various sensors with controllers in an attempt to create “smarter” lab equipment. In general, I like projects that create tools that other scientists can use to better understand the fundamental nature of the world we live in.

Also, I love making things that are really shiny with a lot of cool lights on them because...well...shiny blinky things are cool.

Projects from which scientific category (one or more) would you be interested in mentoring? Categories are explained in detail at <http://synopsys.championship.googlepages.com/scientificcategoriesforprojects>.

Chemistry: General Chemistry

Chemistry: Organic Chemistry

Physics: Atoms, Molecules, Solids

Earth/Space Sciences: Vehicle Development

Earth/Space Sciences: Alternative Fuels

Engineering: Chemical Engineering

Engineering: Materials Science

Computer/Mathematics: Probability and Statistics

If you are a past Science Fair Judge, list scientific categories which you judged: N/A

If you are a past Science Fair Judge, list fairs by name in which you participated (local school fair, Synopsys Championship, CSSF, ISEF, etc.) N/A

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