

SURE 2012

Summer Undergraduate Research in Engineering

General Information Session

January 17, 2012

McDonald Harrington, G-10



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Agenda

- Overview of the SURE experience
- Student testimonials
- Application form
- Processing, procedures and selection
- Your questions



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Projects/Abstracts

www.mcgill.ca/engineering/sure/



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Student Testimonial



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Student Name: Daisy Daivasagaya
Department: Electrical Engineering

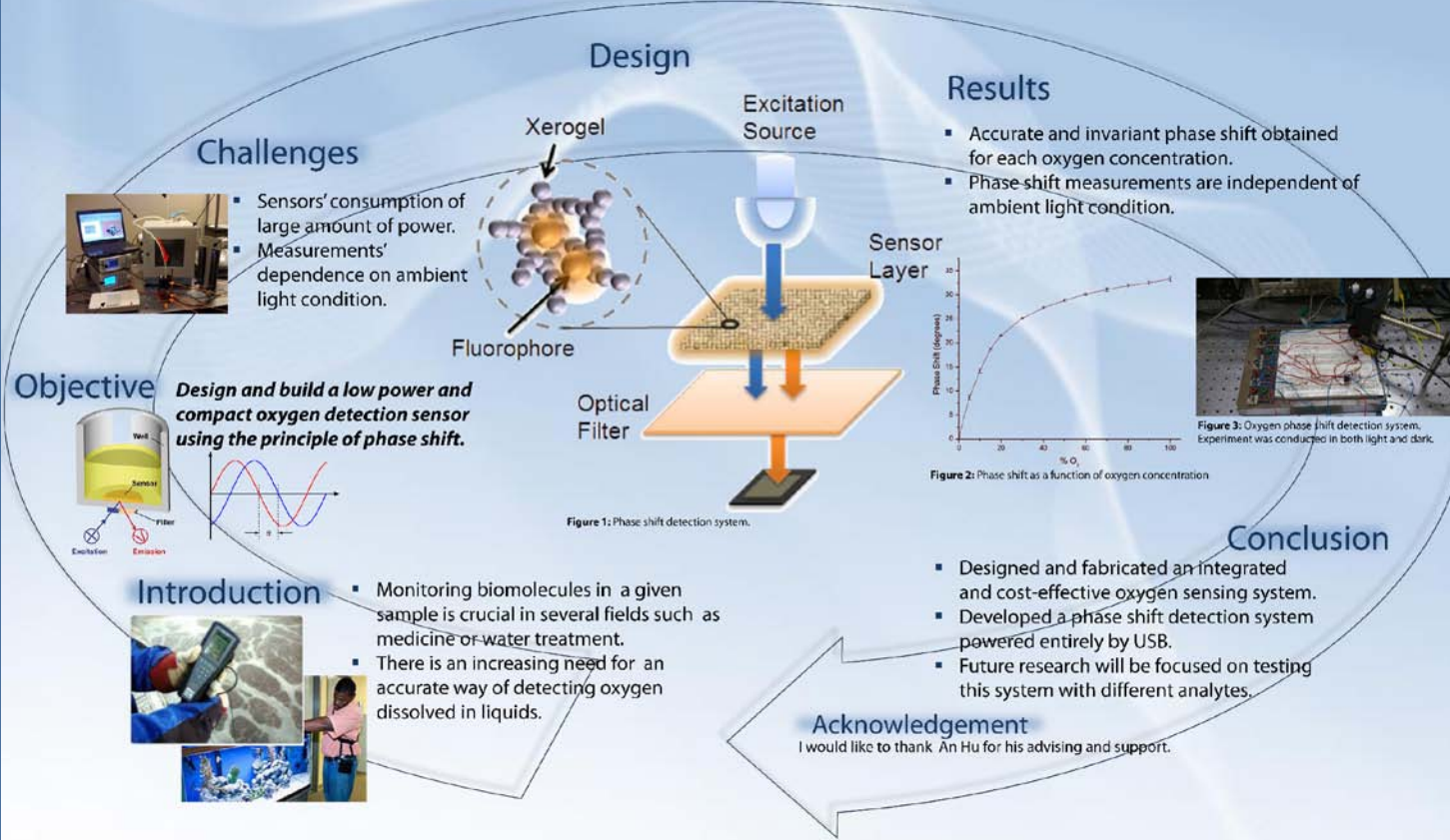


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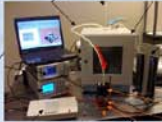
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Phase Fluorometric Oxygen Detection System

Daisy Daivasagaya, Vamsy Chodavarapu
Department of Electrical and Computer Engineering, McGill University



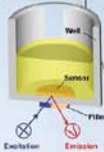
Challenges



- Sensors' consumption of large amount of power.
- Measurements' dependence on ambient light condition.

Objective

Design and build a low power and compact oxygen detection sensor using the principle of phase shift.



Introduction



- Monitoring biomolecules in a given sample is crucial in several fields such as medicine or water treatment.
- There is an increasing need for an accurate way of detecting oxygen dissolved in liquids.

Design

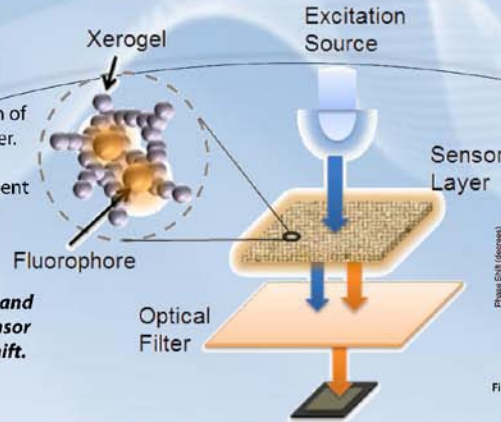


Figure 1: Phase shift detection system.

Results

- Accurate and invariant phase shift obtained for each oxygen concentration.
- Phase shift measurements are independent of ambient light condition.

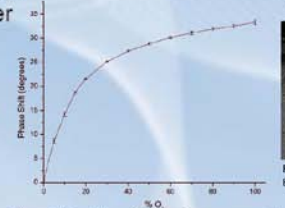


Figure 2: Phase shift as a function of oxygen concentration



Figure 3: Oxygen phase shift detection system. Experiment was conducted in both light and dark.

Conclusion

- Designed and fabricated an integrated and cost-effective oxygen sensing system.
- Developed a phase shift detection system powered entirely by USB.
- Future research will be focused on testing this system with different analytes.

Acknowledgement

I would like to thank An Hu for his advising and support.



Am I eligible to apply?

- Full-time students (including international)
- Year 1 (completed at least two semesters)
- CGPA of 3.0 or higher

Eligibility: www.mcgill.ca/engineering/sure/



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How do I apply?

- Abstracts & Online Student Application Guide are available at: www.mcgill.ca/engineering/sure
- Contact Professor (email/ office hours) to discuss.
- After discussion with supervising professor, complete Online Application form, print and submit with Transcript of Record to your selected supervisor.



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Notes

- Maximum of **3 applications** per student
- Deadline to apply: **Monday, February 6th, 2012**
(Deadline to submit copy of online application & transcript to professor)
- Awards announced after March 2, 2012.
- **Only those selected will be contacted.**



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NEW! Online Application Form

Application Guide & Link available at:

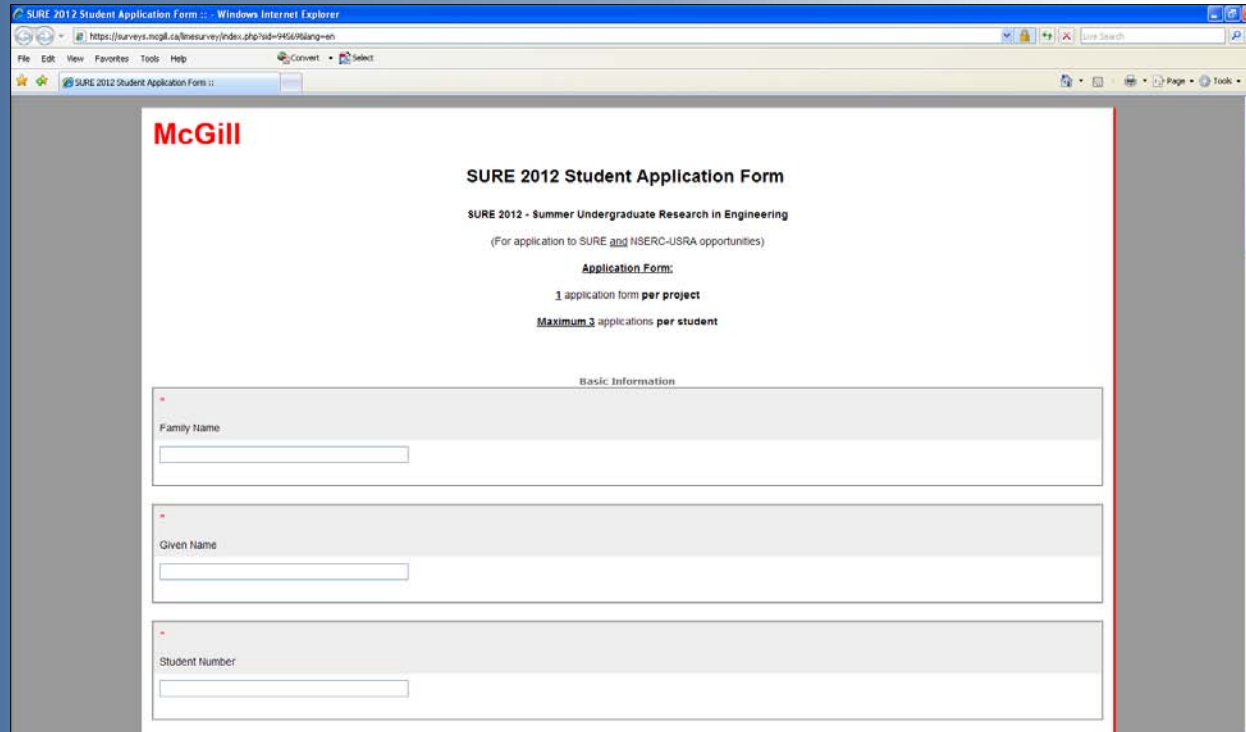
www.mcgill.ca/engineering/sure



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URL: <https://surveys.mcgill.ca/limesurvey/index.php?sid=94569&lang=en>



The screenshot shows a web browser window titled "SURE 2012 Student Application Form" with the URL <https://surveys.mcgill.ca/limesurvey/index.php?sid=94569&lang=en>. The page content includes the McGill logo, the title "SURE 2012 Student Application Form", and the subtitle "SURE 2012 - Summer Undergraduate Research in Engineering". It specifies that the form is for application to SURE and NSERC-USRA opportunities. Key instructions include "Application Form:", "1 application form per project", and "Maximum 3 applications per student". The form is divided into a "Basic Information" section with three input fields: "Family Name", "Given Name", and "Student Number".

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SURE 2012 Student Application Form

SURE 2012 - Summer Undergraduate Research in Engineering
(For application to SURE and NSERC-USRA opportunities)

Application Form:

1 application form **per project**

Maximum 3 applications **per student**

Basic Information

Family Name

Given Name

Student Number



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Questions?

Email: SURE-Info.Engineering@mcgill.ca

In Person: Engineering Student Centre, FDA 22



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Event # 1

Orientation Reception

- Wednesday, May 9, 2012
12:00 pm - 13:00 pm
Trottier Building
- Reception hosted by the Faculty of Engineering
- Planning your summer research experience



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Event # 2

Engineering Research at Work

- Thursday, June 7, 2012
11:00 am - 12:30 pm
Room TBD
- Fields of graduate research in Engineering
- Funding opportunities for Masters and PhD students
- Faculty guest speaker



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Event # 3

Research Poster Design Workshop

- Tuesday July 3, 2012
2:00 pm - 4:00 pm
Room TBD
- Concepts in creating a powerful research poster
- Polishing your presentation
- Break-out session with graduate students



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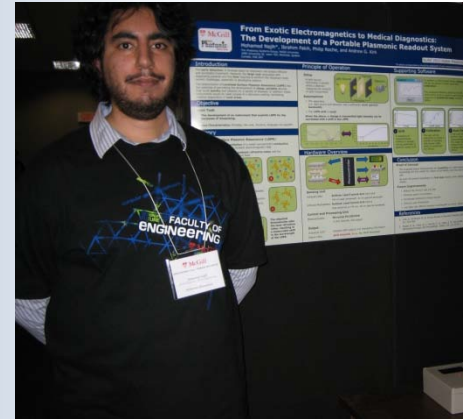
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Event # 4

SURE Poster Presentation

Thursday, August 16, 2012

1:00 - 4:00 pm



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