



ENPH 459

Engineering Project I

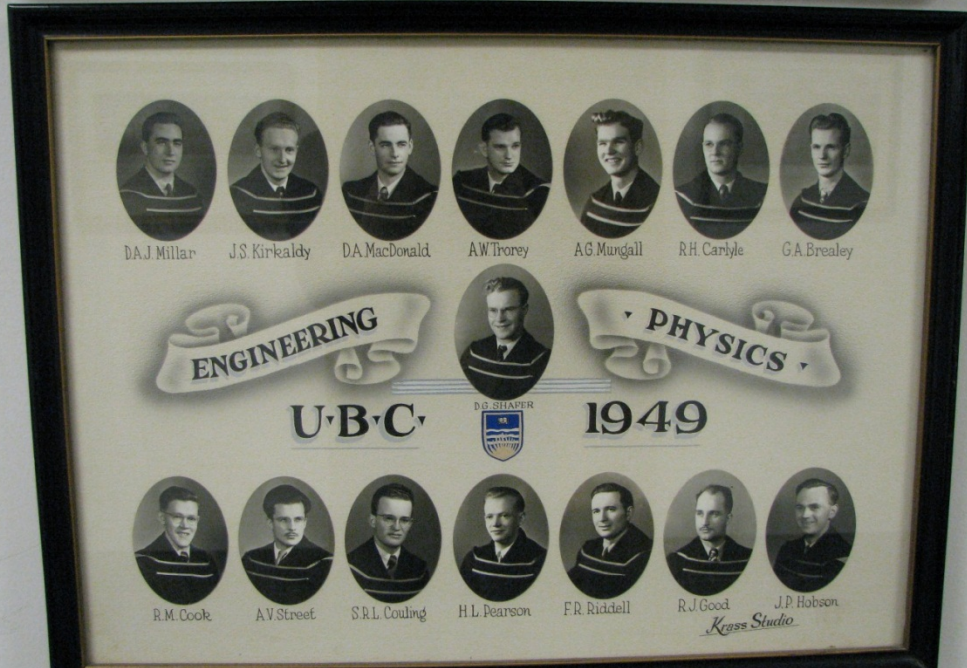
Info session for 2015/16
Talks and links are online.

Google: ENPH 459 Kickoff 2015

2013 March 26

History

1st Engphys Grad Classes 1948, 1949



**ENGINEERING
PHYSICS**

1973



Stuart Foster



1974



Mark Spowage

Harder to develop teamwork skills in the mid-1970's.

EngPhys Project Lab started in 1988/89 to give students a full project experience:

Tech Experience

Design experience

Technical skills

Project Management

Planning

Management

Resource Allocation (equipment + time)

Professional Communication

Professionalism

**Timeline for
the next
12 months**

ENPH 459 is a 2-term course.

Treat it like a 1year experience

(don't believe SSC when it lists it as only a Term2 course)

April

May

June

July

Aug

Sept

Oct

Nov

Dec

Jan

Feb

Mar

Apr

Summer

ID potential team members (2-3 members per group)
Discuss self-guided projects, possible topics

Term 1 (4-6 hrs/week)

Confirm team members / Project by mid-September
Research and Proposals (3-4 drafts submitted)
Most students on co-op this term.

Term 2 (8-12hrs/week)

Project work underway
Final Reports submitted

Recent Projects in ENPH 459 (and 479)

Recent Projects with PHAS Faculty

Microfluidics + NMR

(Carl Hansen, Carl Michal)

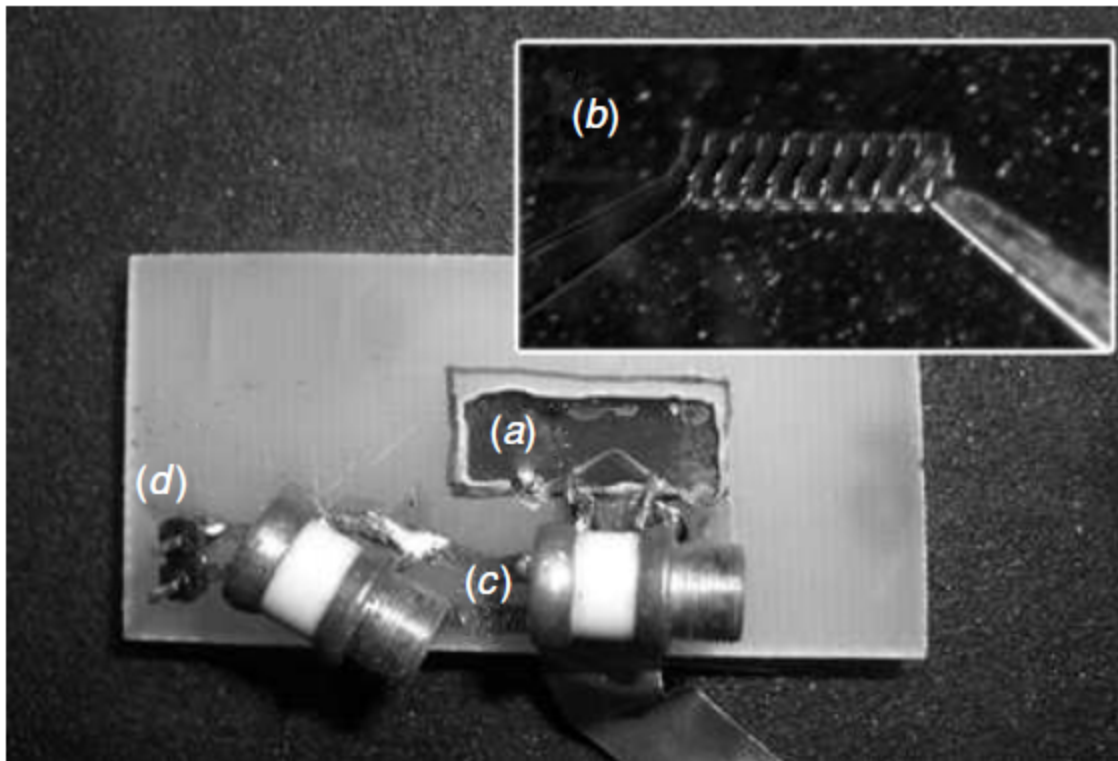


Figure 2. Photograph of the microcoil and tuning circuit, showing (a) a microfluidic chip with the coil beneath the printed circuit board, (b) inset with a close-up photograph of the microcoil (c) tuning and match capacitors, (d) electrical connection to coax cable.

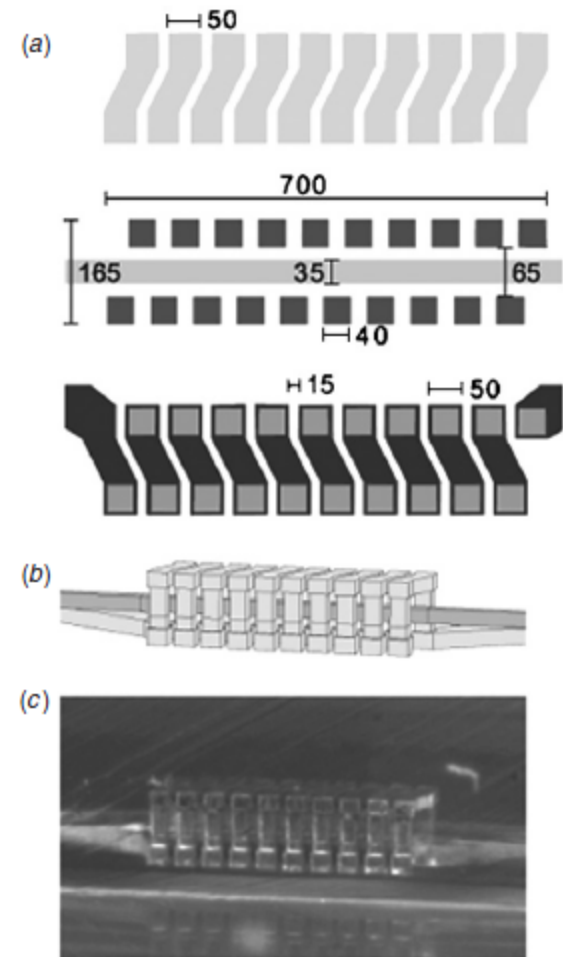
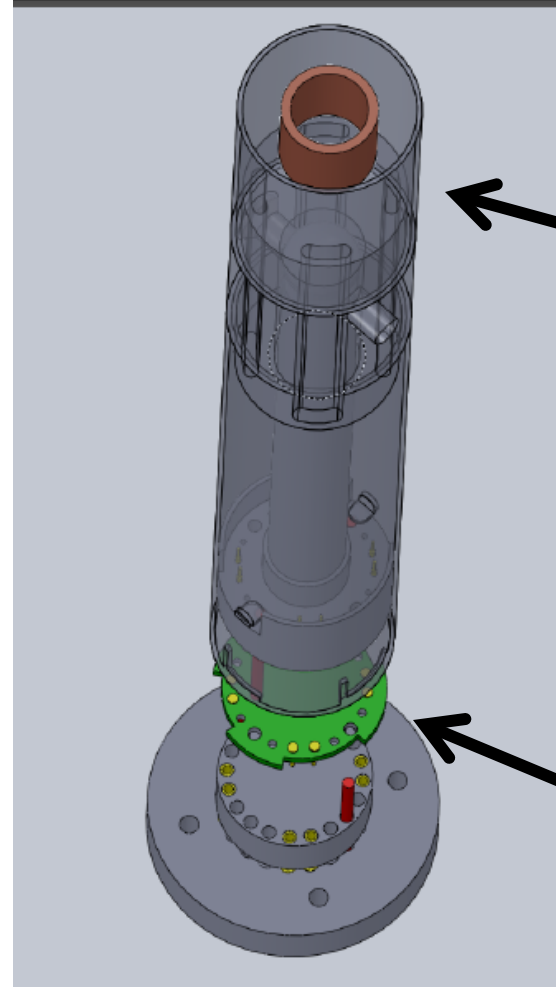


Figure 1. (a) CAD drawing of three individual layers used in constructing the coils. Dimensions listed are in μm . (b) CAD drawing of a finished coil assembly. (c) Optical microscope image of a completed coil.

Low-temperature sample transfer mechanism (Josh Folk)

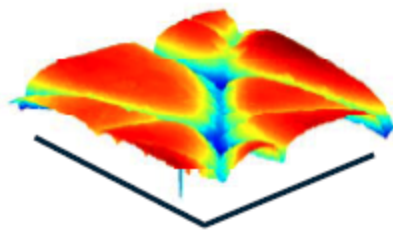
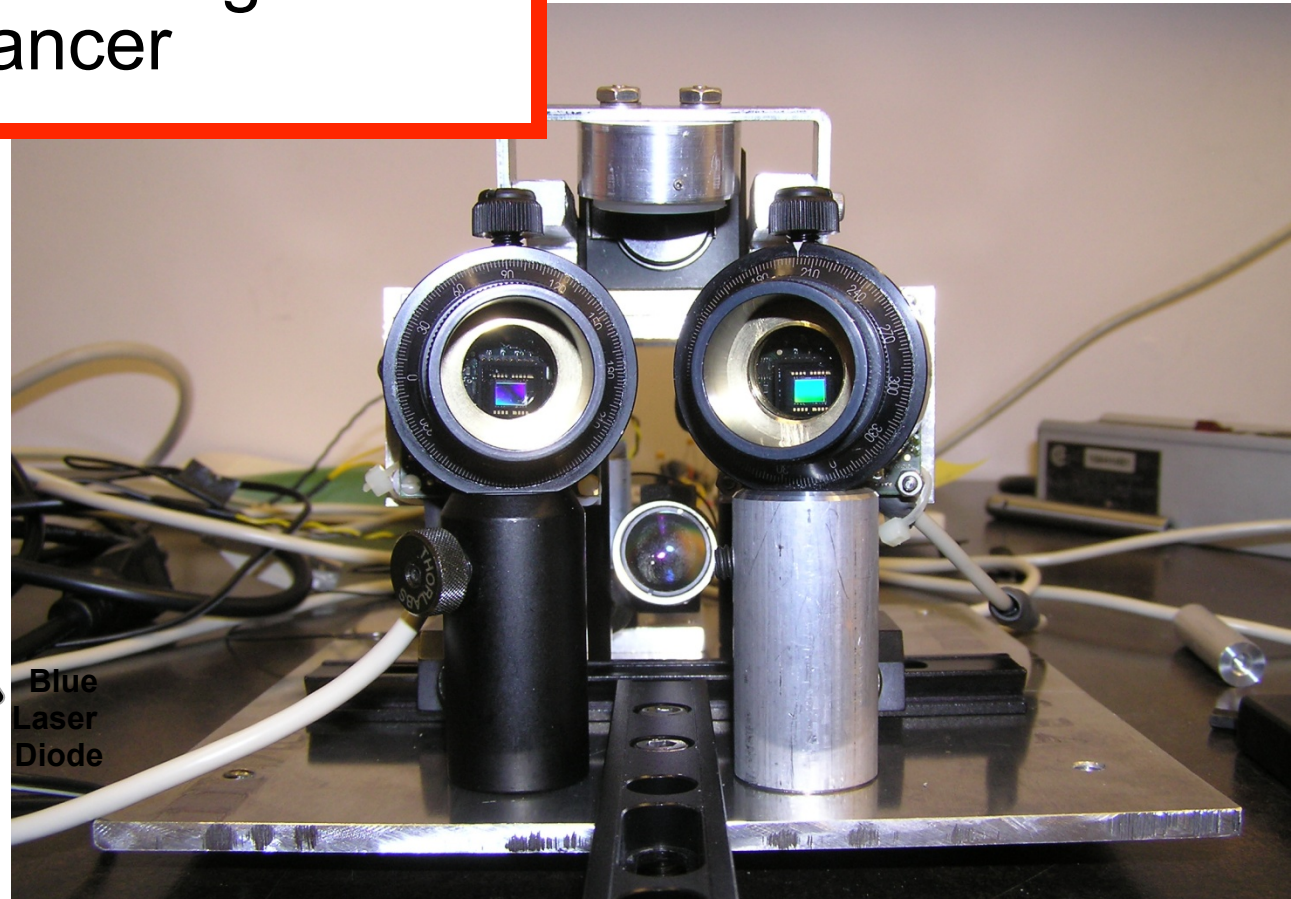
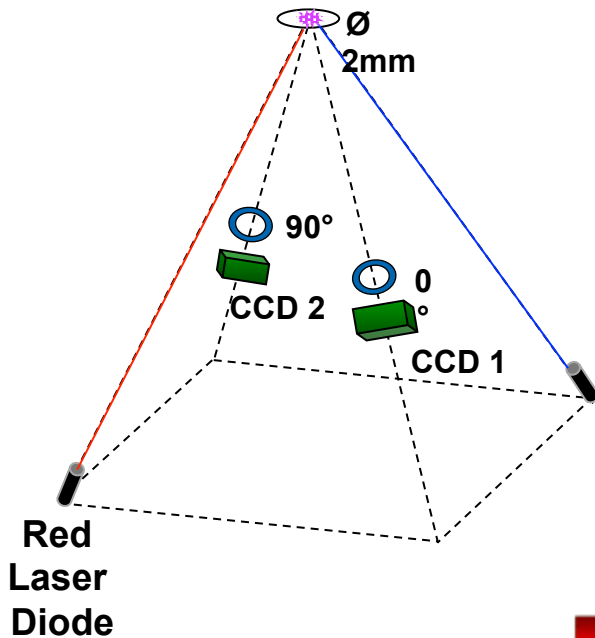


2m long tube
reaching into
the dilution
fridge (0.01K)

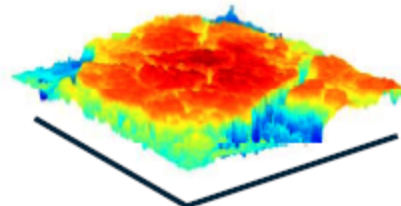
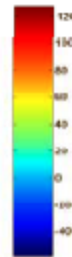
Circuit board
with sample is
~1cm diameter

laser speckle imaging for measuring surface roughness and detecting cancer

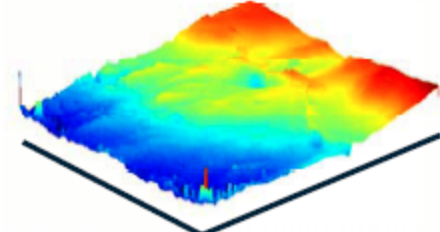
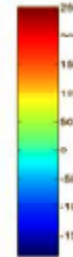
Tim Lee, Haishan Zeng, Luda Tchvialeva



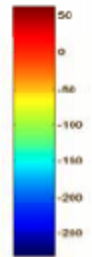
(a) normal skin



(b) seborrheic keratosis



(c) malignant melanoma.



Recent Self- Sponsored Projects

Automated kite flying for power generation



<http://www.youtube.com/watch?v=w5bFITGGIJs>

Surgical flashlight



Electric Mini Project

it's epic.

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Resources for Self-Sponsored Projects

Bycast Prize

- \$10k/year for Engphys-based Entrepreneurial teams
- 3 groups awarded since 2012/13
 - IlluSense (pipeline inspection)
 - ReDeTec (3d printer filament recycling)
 - BlackCrow (bee pollination).
- submissions in Sept/Oct

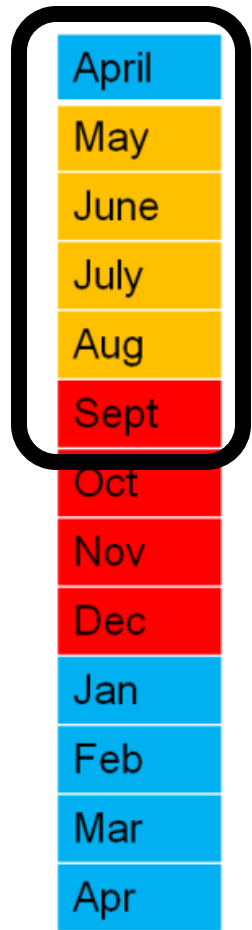
AMS Sustainability Fund

~\$100k/year in projects (e-mini got over \$6k and got to keep their purchases)

Mentorship:

- Lean Launchpad (Iain Verigin)
- entrepreneurship@UBC (networking, patent searches, office space)
- Alumni network (get on LinkedIn ENPH group)

**What to do for the
next 8 months
(before Jan 2016)**



Pick your project and group (2-3 people) by September

- Project Lab postings go up in late August.
- Find something fun and genuinely interesting to you.
- See what fits with your future plans (grad school, jobs, references/contacts) – or choose something completely different.
- All Intellectual Property stays with the Project Sponsors – including self-sponsored projects.
- Longer projects might need more credits (ENPH 480/481)

Research + Proposal Preparation until December

April

May

June

July

Aug

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3 or 4 iterations from Sept-Dec (Stay in touch with team and sponsors throughout the term)

Proposals submitted for review every 3-4 weeks starting early Oct.

Plan to work 4-6 hours per week.

95% of groups don't do enough research and info gathering and scramble in 2nd term..

**Advice from
previous
459 students**

View it online:

[Advice from Previous 459 students](#)

No one has ever said:

“I wish I did less research on my project in first term, I learned too much and was way too well prepared in Jan!”

End with the most important slide

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Term 2 (8-12hrs/week)

Project work officially begins

Final Reports submitted