

EE 491 Weekly Report

MAY15-29 Week 7 (10/13/14-10/19/14)

Advisors: Meng Lu **Client:**

Members (roles): Wenbing Ma, Jiangxiang Zhang(sensor design), Xuan Zhang (Webmaster) , Zhikai Cui (Leader), Chenyin Liu(sample holder design)

Project Title: A high resolution two-dimensional ultrasonic detector using plasmonic crystals

Weekly Summary

In this week, all of us have done with assigned work. Members tried to finish the project in a certain period of time. We thought we would spend more time on this project. Each part in the group works very hard. They ask the professor, Lee and Mani Mina for some suggestion. We increase much more time on the project, and we had many fancy idea for our work.

Meeting notes:

10/18 Group Meeting with Advisor

Duration: 60min

Members Present: All

Purpose and Goals:

Members tried to make a holder for water container, we tried to make the holder within the light material, so we ask for some idea from Lee. Lee will get us the design paper in the coming week. We will discuss it with Lee

Achievements: We have known the location of machine shop and whom should we contact when we have problem with machine. We know how to study a new programming language and how to make a new holder for water container.

Jingxiang Zhang

1. The way to place the sample inside of the sample holder has been decided. The sensor will be stick on sample hold with a special tape.
2. A new sensor with stable performance is explored, and will be used for further testing.
3. The setup with bifurcated fiber (1 input -> 2 outputs with a black jack) is halfway to complete.

Xuan Zhang & Chenyin Liu

1. Sample holder has been set up yet. We started to set up the devices for optical process.
2. Website are already done at: <http://may1529.weebly.com/>. We have finished the main page and upload our weekly reports and design documents to our website. We have already upgrade our team information including contact information and photos for each of member. Also, we need to transfer our website from weebly to iastate.edu dominate.
3. We went to machine shop to check if we can make an appropriate holder for accustic wave traducer. We talked with Lee and he took our sample holder and he will help us to design a holder for acoustic wave traducer. Also, he will check the size and get us an appropriate bars for stall our devices.
4. We have learned some stuffs about how to write programming code for an IOS app. We need to use Xcode on a Mac system and need to learn the language provided by Apple Int. itself. It will take times.

5. Members design the new equipment within solid work. We designed a camera holder, which would be used in the cellphone camera. This equipment will be a bit complex, we would use 3D printer to manufacture.

Wenbing Ma & Zhikai Cui

1. Totally collect 5 group of data for different for different frequency of ramp signal
2. Discussed and chose one DAQ to use for our project. Probably we can get it before next week.
3. Do the code for motorize stage, figure out the COM port identification.

Pending issues

1. We will wait for appropriate design for holders from Lee.
2. We need to figure out the protection for circuits for acoustic wave transducer.
3. We need to learn how to use phpMyadmin to manage our website.
4. Documentation should be filled with more context and materials.
5. App cannot be finished recently since we need a Mac system to run Xcode. Also we need to learn the programming for more time.
6. oscilloscope may not handle the data collection process. we will use the DAQ

Plans for next week

Wenbing Ma & Zhikai Cui

- figure out the serial communication of motorize stage using lab view through the COM port
- go figure out the data period that the oscilloscope give back

Jingxiang Zhang

- Complete the setup with bifurcated fiber
- Will make a decision of how to set up the laser diode based on the testing results of sensor.
- Draw the diagram of the setup for demonstration

Xuan Zhang & Chenyin Liu

- Wait for design for holders and set it up.
- Help Wenbing Ma and Zhikai Cui to set up the optical devices.
- Learn to use phpMyadmin to manage our website.
- Modify our documentation to get better job.
- Keep learning to design the App.

- Design the cellphone crust via Solidworks.

Individual Contributions (this week)

- Wenbing Ma attended the meeting(1.5hr), did the research (5hr)and coding for the Labview (4hr) analyze the collected data(2hr)
- Jianxiang Zhang attended the meeting attender the meeting(2hr), finished the measurement of new sample and build half of the setup with bifurcated fiber.(9hr)
- Xuan Zhang attended the meeting(1hr). Sample holder and optical devices set up.(4hr). Website and documentation(3hr). Learn to design the App.(4hr)
- Zhikai Cui attended the meeting (1hr), did the research (5hr)and coding for the Labview (4hr) analyze the collected data(2hr)
- Chenyin Liu attended the meeting (1hr).Sample holder and optical devices set up.(4hr). Website and documentation(3hr). Learn to design the App.(4hr)

Total contributions for the project

Wenbing Ma (12.5hr)

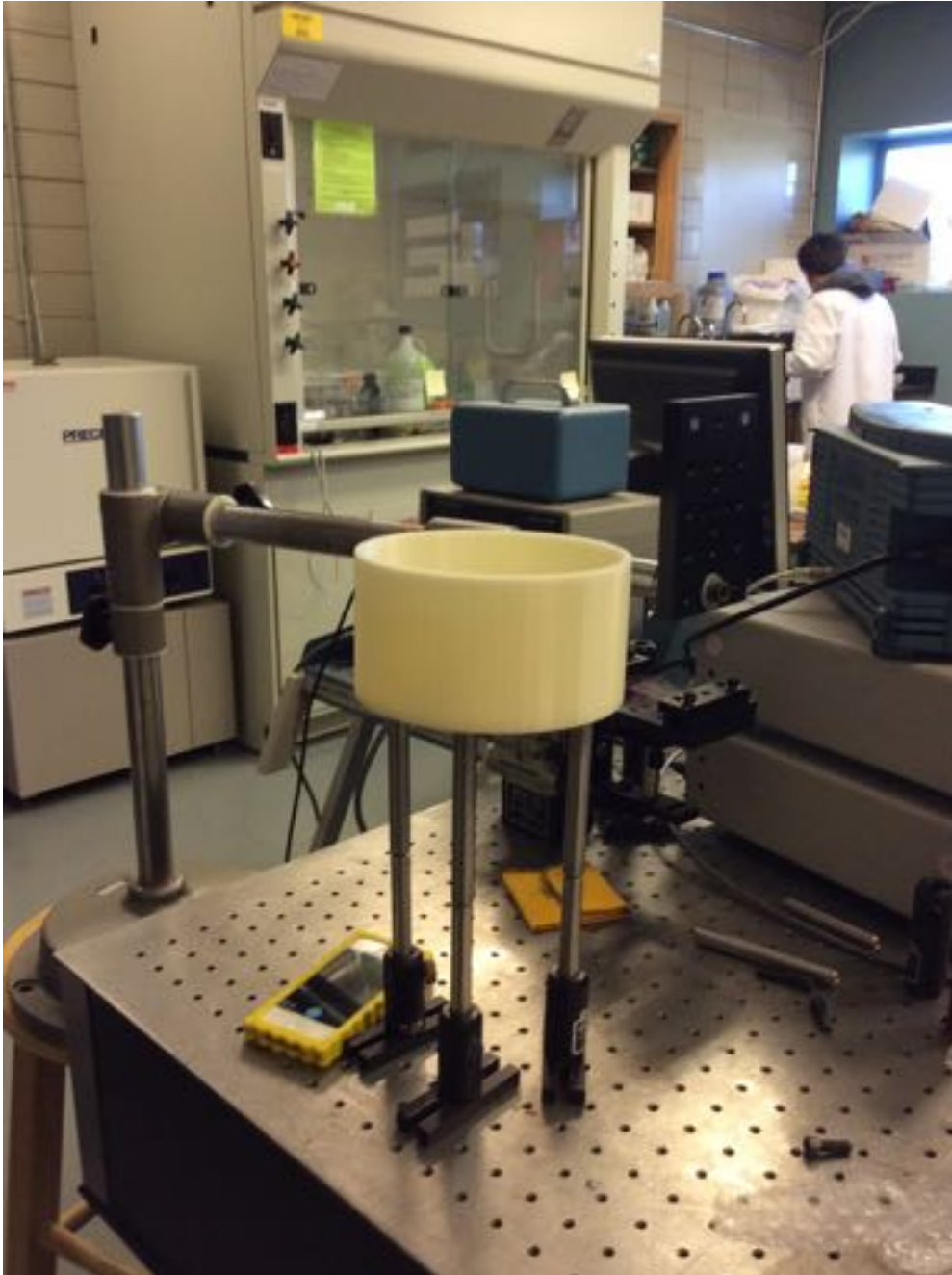
Jiangxiang Zhang (11hr)

Xuan Zhang (12hr)

Zhikai Cui (12.5hr)

Chenyin Liu (12hr)

Smapple Holder setup

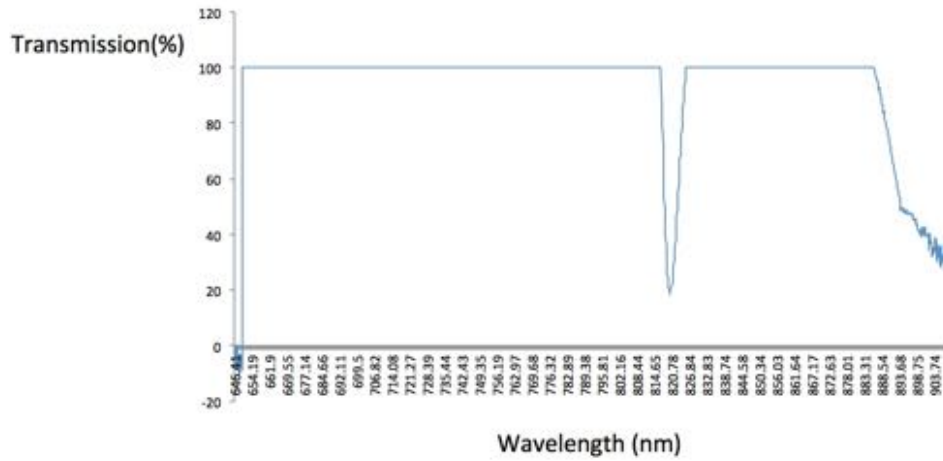


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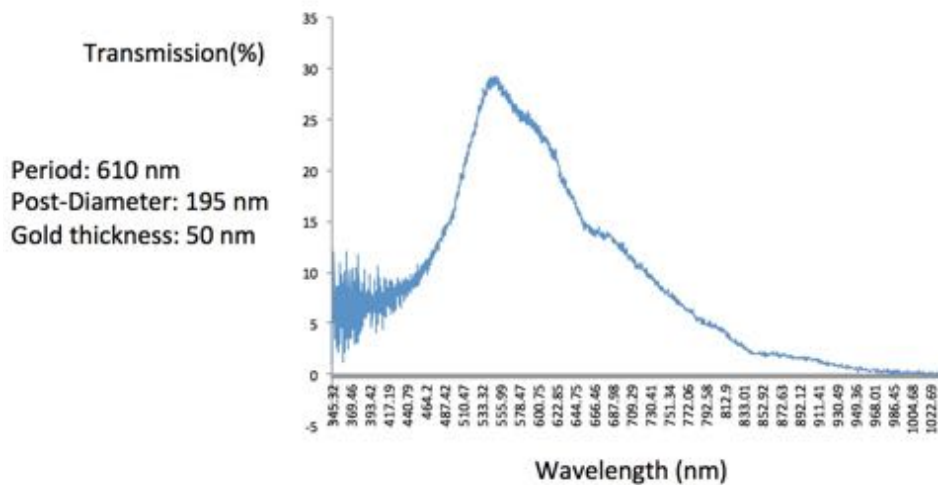
Analog Input

Number of Channels:	8 SE/ 4 DI
Range, Bipolar:	-10 to 10
Resolution:	16 bit
Sample Rate:	50 kS/s
Analog Output	
Resolution:	16
Update Rate:	5 kS/s
Number of Channels:	2
Range, Bipolar:	-10 to 10V
Digital I/O	
Number of Channels:	8
Counter Timer	
Counter Inputs:	1
Counter Resolution:	32 bit
Measurement Type	
Measurement Type:	Voltage Output , Counter , Current , Multifunction
Interface List	
Interface:	USB

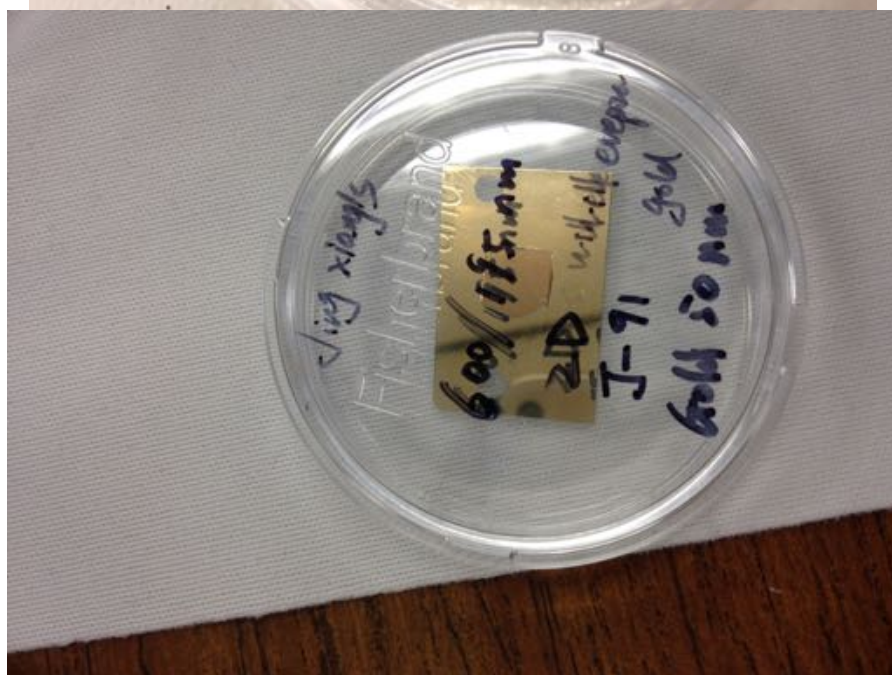
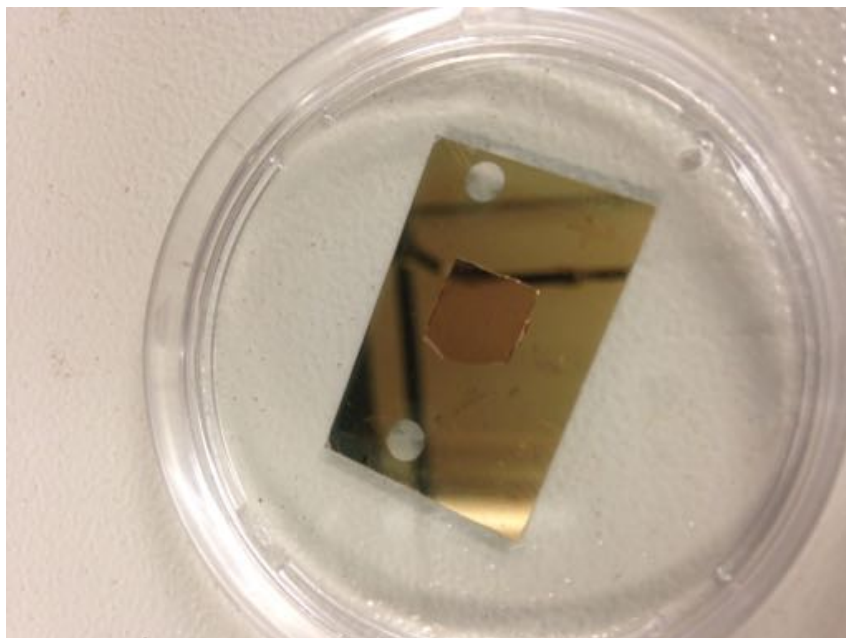
Measurement for new sensor spectrum



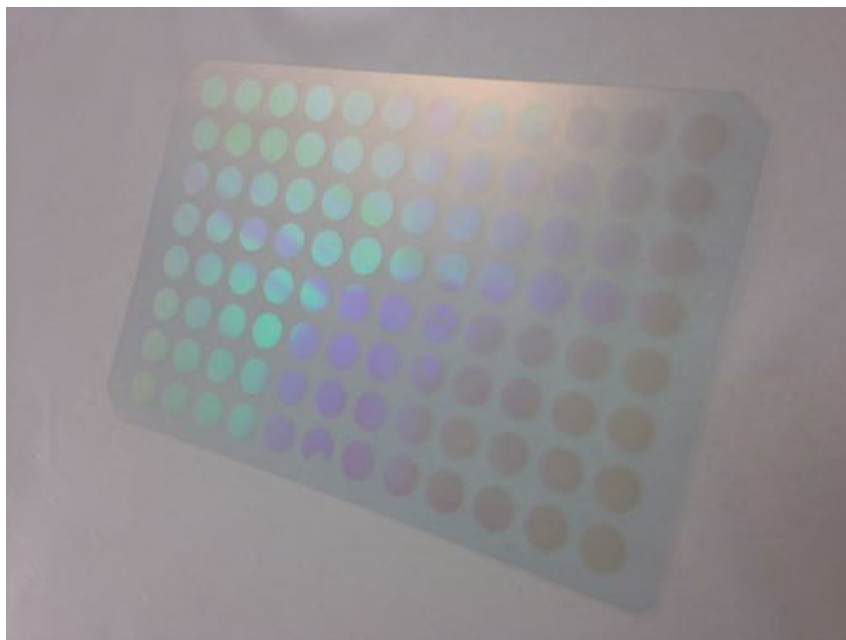
Measurement for J-91 spectrum



J91-Sample



New Sensor



New sensor