Bio Photonics Simulator
http://nanohub.org/resources/biophotonicsim

For this lab, we will create text file inputs for our tool and run our tool with these inputs. We will use an online C compiler
http://ideone.com/
to run our code. Then we will copy and paste our input into a text file.

```c
#include <stdio.h>
int row(int i){
        int answer;
        answer=i%2; //This is the only line of code you will ever change :)
        return answer;
}
int main(){
        int i,j;
        for(i=0;i<128;i++){
        for(j=0;j<2;j++) printf("%d ",row(i));
        printf("\n");
        }
        return 0;
}
```

We will start off by running this simulation with the output txt you have created. We will change 3 things from the default version of the tool.
1 and 2. under Image Parameters
               under image co-ordinates
                   Make m=1, n=1 and p=64
3. under Image Parameters
        under Other Parameters
           under Example
              choose Upload...
                  choose Copy/paste text
                     paste your output text in the space provided

    Run your simulation. Choose Frequency Spectrum at Screen K from the "Result" bar at the
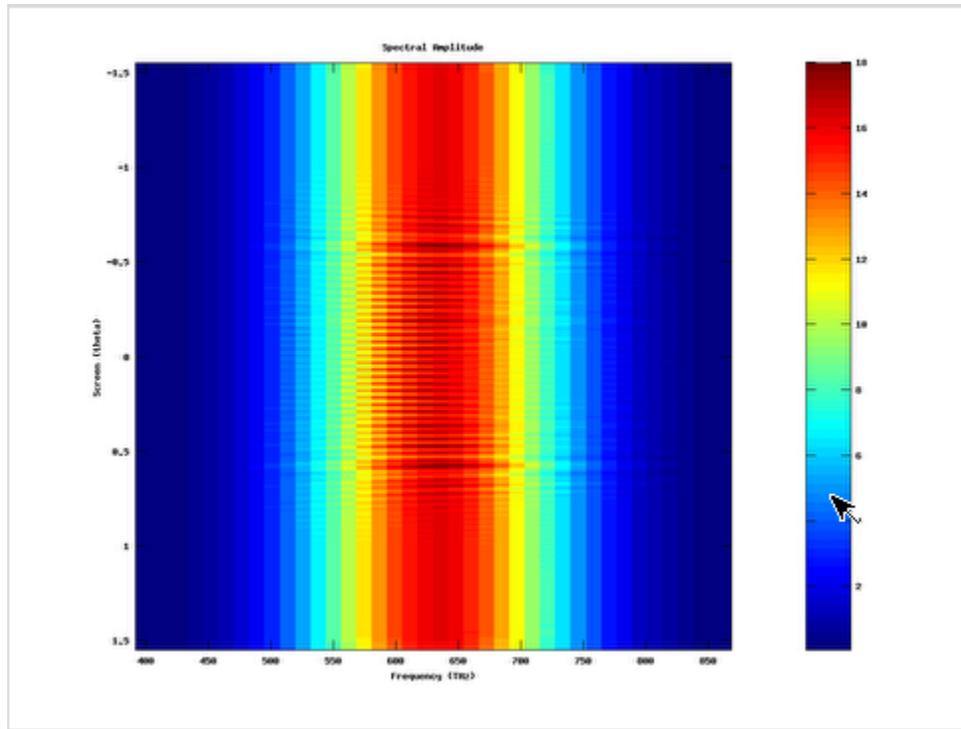
top.

Question 1.
- When you simulate using "answer=i%2;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?

Question 2.
- When you simulate using "answer=i%4;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 3.
- When you simulate using "answer=i%8;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 4.
- When you simulate using "answer=i%16;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?

- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 5.
- When you simulate using "answer=i%32;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 6.
- How does doubling the period of our steps affect the separation of the peaks in the amplitude vs frequency plots?
- Did you expect this due to properties of the Fourier transform?

Question 7.
- When you simulate using "answer=i/32;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 8.
- When you simulate using "answer=i/16;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 9.
- When you simulate using "answer=i/8;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 10.
- When you simulate using "answer=i/4;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 11.

- When you simulate using "answer=i/2;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?

Question 12.
- When you simulate using "answer=i;", is there much change of the amplitude as the angle changes?
- Is there a diffraction like pattern?
- Is the difference in amplitude between the peaks and valleys huge or small?
- How do the amplitude vs theta and frequency plot and the previous plot compare?