5.1. Conclusion

This research shown that the prototype of one dimension photonic crystal with two defects could be implemented as optical sensor to measure a certain solution’s concentration. In this case, we used sugar solution with the concentration range from 20 - 500 g / L and the measured refractive index between 1.332 and 1.415 as a sample target. To analyze the result, we used the linear regression method. We divide the data into two linear areas: the first is the area with 20-100 g / L and , and second, the area with 100 - 500gr / L. The results shown that the determination coefficient could be reached up to 98%. Based on this fact, we are certain that this device can be used to measure the solution’s concentration in varieties of applications; for instance, to measure the water sanitation for the environment, blood sugar for medical field, sugar content in the baverage industries, and many others. This measurement can also be carried out by using the in situ and real time mechanism.

5.2. Future Work

This research is an initial step for the making of measurement tool with an adequate instrumentation. For the next step, we will develop an instrumentation that can be controlled by computer through a series of preludes.
REFERENCES


