

Short proposal- Fabrication of Flexible Electronics using Nanomaterials

Research on Flexible plasmonics has arisen from the realization of flexible electronics and photonics, which are expected to play a significant role in next generation electronic devices [1]. A tremendous amount of work on the design and fabrication of various cost efficient electronic devices on flexible substrates for daily life applications has already been performed by various research groups [2]. Innovations in materials science are key research for next generation. Transistors, interconnects, memory cells, passive components and other assorted devices all have challenging material demands for flexible electronics to become a reality. Nanomaterials of various kinds have been found to represent a tremendously powerful tool with nanoparticles [3], nanotubes, nanowires [4] and engineered organic molecules [5] contributing to the realization of high-performance semiconductors, dielectrics and conductors for flexible electronics applications. However, the research on flexible plasmonics is relatively new and it is quickly moving toward the fabrication of low-cost plasmonic devices for daily-life applications. In the future, it is expected that flexible plasmonics can be combined with electronics for new generation devices with multiple functions in a single device.

After joining Kalasalingam Academy of Research and Education, I would like to make an attempt for fabrication of Low cost Flexible electronics using available semiconductor based materials. It will be further analyzed using different characterization techniques and the working of the device will be either done through simulator or through some testing devices.

References

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- [4] Sekitani T *et al* 2009 Organic nonvolatile memory transistors for flexible sensor arrays *Science* **326** 1516–9.
- [5] Mannsfeld S C B *et al* 2010 Highly sensitive flexible pressure sensors with microstructured rubber dielectric layers *Nature Mater.* **9** 859–64