











#### 4. Conclusion

The commercial GO powder was partially oxidized (4-10%) and thus behaved as reduced, which was observed by the black colour compared to a yellow brown colour reported for well oxidized GO. The GO films were deposited on silicon substrates using spin coating technique. The SEM images revealed that the film spun at 4000 rpm had better surface coverage of the GO sheets. The XRD and UV-vis revealed that the powder still contained unoxidized graphite layers at  $2\theta = 26^\circ$  which was supported by the shift in UV absorbance from 230 nm to 273 nm assigned to reduced GO. XRD of the film showed that the deposited GO was better exfoliated than in the original commercial powder, which is attributed to removal of the larger particles by centrifuging. PL measurements of the suspension and film showed a blue luminescence, which has been reported for highly exfoliated GO. Due to the poor uniformity of the GO films spin-coated over the substrate, alternate ways of producing such films will also be investigated in future work.

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