



**New dimensions in nano-plasmonics:** Metal coated ZnO system offers new horizons in the field of plasmonic and optoelectronic devices. Exciton-plasmon coupling, hot carrier generation through inter-band transitions, decay of surface plasmons into carriers and formation of barrier at the interface plays crucial role in the determination of enhancement ratio. Non-noble metals like Al, Cr provides economic and simple way to tune the UV emission and passivation of defect related emissions. Previously reported mechanisms behind the passivation of defect level emission were satisfactory for noble metals only. Interestingly, the involvement of hot carrier generation either through interband transitions and/or decay of surface plasmons can satisfactorily explain the passivation of defect level emissions and enhancement of UV emission for all categories of metals. UV and visible photodetectors were also fabricated and it was found that Al/Cr coating can significantly improve the device performance.

1. Insights into Non-noble Metal Based Nanophotonics: Exploration of Cr-coated ZnO Nanorods for Optoelectronic Applications”, RSC Advances, vol. 8, pp. 6820, 2018
2. Role of Surface Plasmon Decay Mediated Hot Carriers Towards the Photoluminescence Tuning of Metal Coated ZnO Nanorods", Journal of Physical Chemistry-C, vol. 121, pp. 3540, 2017