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One molecular precursor for many photonics and magnetic nanowires

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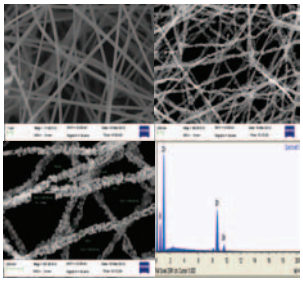
Technologically important inorganic oxides have very stringent processing conditions involving costly penalties in terms of energy, time and processing ease. Preserving chemical homogeneity and purity involves multi step approach involving costly starting materials. To have the final composition of a desired material in a precursor ensures atomic level mixing and purity of the end product. Here we propose a well known molecular complex namely Aluminium quinoline complex, popularly known as 'Kodak molecule' to act as a potential precursor to synthesize complex and technologically important oxides such as Ruby, Sapphire, Nd: YAG, Alumina Phosphors etc; important for photonic applications. The novelty of this innovation is that they can be rendered as bulk materials or as thin films or as nano wires.

Similarly we propose a well known molecular complex namely Zinc (II) 8-hydroxy quinoline complex (Znq_2), popularly known as an 'emissive material' in organic light emitting diode device applications. This complex acts as a crucial precursor to realize important oxides/chalcogenides such as ZnO, Mn:ZnO, Cd: ZnO, Ag: ZnO, & ZnS, important for photonic applications. This talk will aim to show several examples including YBCO and YIG and $LaMnO_3$ nanowires.



SEM images of a) Znq2 Nanofibers b) ZnO nanofibers calcined at 500°C for 3 hours c) Enlarged view of ZnO nanofibers, d) Shows the EDX spectrum of ZnO nanofibers and the inset The TEM morphology of the ZnO fibers.

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