Abstract - Polyaniline (PAni) is one of the most studied forms of conducting polymers due to its unique electrical and optoelectronic properties. The synthesis of this polymer can produce a variety of “one-dimensional” morphologies, like rectangular structures, nanotubes, nanofibers, micromats, or even nanodisks, which made them unique materials for specific device application. One way to tune and improve the morphology of PAni nanostructures is by the introduction of a suitable steric stabilizer. Smoother and uniform surface will be achieved due to the non-formation of PAni agglomerates upon the introduction of steric stabilizer. It is also believed that aside from the influence of steric stabilizer, polymerization time of PAni may also affect the growth of the grown nanostructures. In this work, growth and characteristics of silica modified-polyaniline/zinc sulfide (SM-PAni/ZnS) nanostructures were prepared via chemical bath deposition on glass substrate. The growth polymerization time of ZnS nanospheres onto SM-PAni nanostructures has been observed. Results of the Scanning Electron Microscopy (SEM) revealed that polyaniline will grow rod-like nanostructures and ZnS will grow spherical nanospheres. Furthermore, FTIR spectra confirmed that the grown polyaniline is of emeraldine salt oxidation state. The average diameter of the grown ZnS nanospheres did not significantly change by changing the polymerization growth time. However, variation in the density distribution of ZnS nanospheres was observed. This phenomenon can be explained in the saturation of during polymerization.

Keywords - Polymerization, Surface Morphology, Polyaniline, Zinc Sulphide

Remark: The full paper may be found in www.inrit2013.com