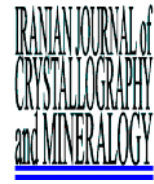




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## A Study of structural and magnetic properties of fibers $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ superconductor made by electrospinning method

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**Abstract:** Electrospinning is one of the most feasible techniques for producing nanoceramic fibers. In this paper,  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  (YBCO) superconductor nanofibers synthesized using electrospinning. The first step was preparation of a composite that is formed by mixing yttrium, barium, and copper acetates with different percent of polyvinyl alcohol (PVA). Then, the composite polymer has been electrospun to produce nanofibers. In order to obtain the calcination temperature, thermogravimetric analysis has been employed. Finally, for characterization, the nanofibers samples have been studied by, SEM, XRD, and ac magnetic susceptibility before and after sintering. The results showed that the best fibers in terms of diameter size and the absence of bead defects are attributed to 7.5 wt% of acetates. Also, the best sintering temperature for synthesizing the fiber sample of  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$  was found 930 °C and the transition temperature of the fiber sample was obtained 93.2 K.

**Keywords:** *nanofiber; superconductor;  $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ , electrospinning.*

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