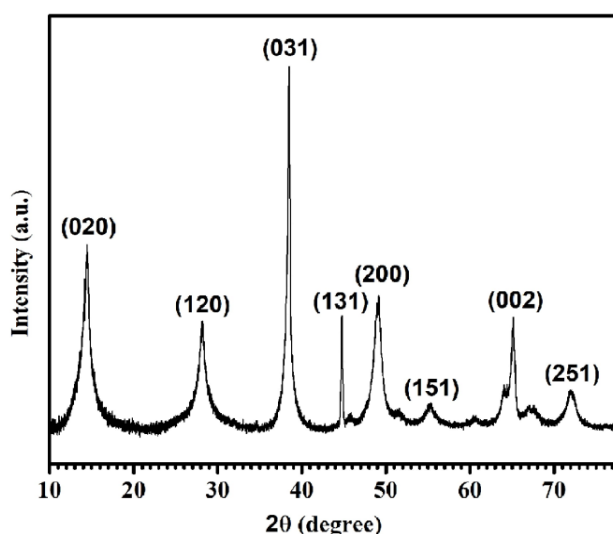


Hydrothermal assisted synthesis, characterization and application of Boehmite nanostructuresMisba Jan ¹, M. Mursaleen Butt ^{#2}, M. A. Shah ^{#3}^{1,#2} Department of Mechanical Engineering, National Institute of Technology, Srinagar, Kashmir-190006, India.^{#3} Department of Physics, National Institute of Technology, Srinagar, Kashmir-190006, India.

Abstract: Here, we report a simplistic, cost effective and eco-friendly hydrothermal technique for the preparation of Boehmite AlO(OH) nanostructures at moderate temperature by using DI water and H₂O₂ as a reductant in reaction with aluminium. The crystallinity and purity of the as-synthesized nanostructures were examined by powder X-Ray Diffraction (XRD). All diffraction peaks in the sample could be indexed to Boehmite crystalline phases in XRD pattern. Moreover, XRD pattern showed no alumina hydrate other than Boehmite. The XRD pattern of the sample is shown in fig. 1. The relatively broad peaks suggest high crystallinity of the samples. The mechanism for the formation of Boehmite nanostructures involves the decomposition of the aluminium metal with water giving out hydrogen. Boehmite nanoparticles show great potential in improving mechanical properties of fiber reinforced polymers.

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5th International Conference on Nanotechnology for Better Living (NBL-2019), Jointly organized by National Institute of Technology (NIT) Srinagar and Indian Institute of Technology (IIT) Kharagpur; April 7 – 11, 2019 at SKUAST, Shalimar Srinagar, Jammu and Kashmir, India; Editor: Dr. M. A. Shah and Prof. P. Banerji, ISBN:978-81-939516-0-6; Published by Applied Science Innovations Pvt. Ltd., Pune, Maharashtra, India.