

Structural stability of nano CuO at high pressure conditions

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Recently CuO nanomaterials have gained much importance as antimicrobial materials and used in biomedical devices to prevent bacterial infection after the US Environmental Protection Agency (EPA) recognized its usage [1]. CuO nanoparticles are further used in antitumor therapy and glucose sensors [2-4]. Besides its medical applications, CuO finds importance in superconducting materials and dilute magnetic semiconductors. In order to understand the stability of nanoCuO at extreme conditions and to identify possible phase transformations, we have compressed 50 nm sized nano CuO at high pressure conditions and heated the sample at extreme pressures around 35 GPa. The high-pressure x-ray diffraction experiments on nano CuO show that the crystal structure is stable up to 35 GPa and a structural anamoly is found beyond 35 GPa upon heating. The results are compared with bulk and other nano particles.

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Biography

Sowmya Kumar is a Sophomore high school student at Green Valley High School (GVHS), Henderson, Nevada.She is involved in the research about studying the structural behavior of nanoparticless used for biomedical applications. She also serves as the vice president of HOSA in her school and the student chapter director for a non profit organization called ARDOR which provides medical assistance to the needy.

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