

Synthesis of ternary oxides by microwave technique

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Synthesis of nanomaterials is highly demanded due to the development of nanodevices. Nanostructures or microstructures of binary oxides such as TiO_2 , ZnO and Al_2O_3 have been extensively prepared and studied. The synthesis of ternary oxide nanomaterials with controlled structures, morphologies and sizes are of interest due to the potential application in nanodevices caused by tunable energy level, bandgap and structure. In this work, we use solution based method to prepare CaWO_4 and LaPO_4 ternary oxide nanomaterials by microwave technique. Controlled sizes and morphologies including nanorods and microspheres are synthesized by microwave method, which is believed to be a simple and low cost technique for scaling up synthesis of ternary oxide nanomaterials. In addition, the short-time consuming process enables the high efficiency of the production. Structural and

optical properties of the prepared nanomaterials are investigated in this work. We believe that this work points out a new research direction ternary oxide synthesis.

Speaker Biography

Dr. Dai is an assistant professor of physics in Jackson State University USA. He earned his Ph.D degree in Condensed Matter Physics at Chinese Academy of Sciences in 2009, then served as postdoctoral research associate in USA at Florida State University and University of Wyoming. He serves as a reviewer for about 20 journals. He has published 70 papers in peer-review journals. He received 2017 Mississippi Space Grant Consortium Research Initiation Seed Grants, 2017 Mississippi IDeA Network of Biomedical Research Excellence Curriculum Development Grants, 2013-2016 National Science Foundation China, 2009 "Da-Heng" Optics Scholarship, Chinese Academy of Sciences. He is an editorial board member of 1) Nature - Scientific Reports, 2) SCIREA Journal of Energy, 3) Nanomedicine and Nanotechnology Journal.

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