

脉冲激光轰击法连续制备金掺杂的 YBCO 杂化材料研究

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摘要 采用聚焦脉冲激光轰击浸于流动YBCO前体氧化物水溶胶中的金靶, 连续制备了金掺杂的YBCO前体氧化物水溶胶, 进而煅烧获得金掺杂的YBCO杂化材料. TEM和XRD结果表明金掺杂使YBCO杂化材料粒径和晶化程度变小, 能谱扫描测得金掺杂前后YBCO杂化材料中的Y、Ba和Cu相对含量未发现明显偏差, 但金只在其中个别区域探测到, 表明在煅烧过程中金发生了团聚.

关键词 [YBCO](#) [金](#) [掺杂](#) [激光](#) [溶胶-凝胶](#)

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Preparation of YBCO Hybrid Materials with Au Dopant by Pulsed Laser Ablation

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Abstract The YBCO precursor oxide-water sol adulterated with Au clusters was successively prepared by pulsed laser ablation at the interface of Au target submerged in flowing YBCO precursor oxide-water sol, YBCO precursor oxide-water sol with Au clusters dopant was first obtained, then YBCO hybrid materials were obtained after calcination in air. The sol was characterized by TEM and the hybrid materials were characterized by XRD and SEM with an EDX analysis. The TEM and XRD results show that the size of YBCO hybrid materials doped with Au clusters is smaller and its crystallization degree is obviously reduced. EDX analysis indicates that there's no evidence showing the deviation of Y, Ba and Cu in the YBCO hybrid materials, but Au clusters are detected only in a few regions, which indicates that Au clusters may agglomerate during high temperature calcination.

Key words [YBCO](#) [gold](#) [adulterate](#) [pulsed laser ablation](#) [sol-gel](#)

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