

Abstract Submitted
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Positron lifetime measurements of YAG ceramic transparent

PAUL HUSBAND JR, FARIDA SELIM, Bowling Green State University — Ceramics has been proven to offer additional advantages over single crystals and there has been tremendous advance in the area of fabricating yttrium aluminum garnet (YAG) transparent ceramics for laser applications. However, transparency is still less than the value predicted by theory and the development of YAG transparent for scintillation devices requires understanding and control of trapping defects. In the present work positron lifetime spectroscopy (PLS) is applied to study porosity and trapping defects in YAG ceramics and compare with single crystals. Measurements are carried out using a conventional coincidence lifetime spectrometer with 180 ps resolution. The use of PLS reveals various defect types and concentration and greatly enhance transparent ceramic research. Funding was provided by the National Science Foundation (DMR1359523 grant).

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