

Abstract Submitted
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Local Structure about Zn and Nb in LiNbO₃:Zn BRADLEY CAR, UCSC — Doped LiNbO₃ has a range of applications in optics, but how these effects emerge from the local structure particularly in doped materials, is poorly understood, as the substitution site(s) is still under debate. We present a detailed analysis of the local structure about Zn (7.3-11.1%) in doped LiNbO₃ using the extended X-ray absorption fine structure (EXAFS) technique, in order to determine the defect substitution site. Our analysis shows that even for high Zn concentrations Zn substitutes on the Li site, but the environment about Zn is distorted. From Nb EXAFS the environment about Nb in the host crystal generally agrees very well with diffraction except for the first O shell which appears to have a third longer Nb-O distance - perhaps O on an interstitial site or OH⁻.

Bradley Car
UCSC

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