

Abstract Submitted
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X-Ray Circular Dichroism Detected Spin Populations in N Doped (100) GaAs¹ SIOAN ZOHAR, JONG WOO KIM, PHILIP RYAN, DAVID KEAVNEY, Argonne National Laboratory — We present the x-ray absorption and reflectivity of optically injected spin populations into highly doped n:GaAs. The spin population was excited in the GaAs using a circularly polarized laser at the band gap energy and detected using synchronous methods referenced to the x-ray repetition rate and laser chopping frequency. We observe x-ray circular dichroism along the Ga L₃ and L₂ edges two orders of magnitude larger than expected from LMTO band structure calculations. This observation is explained in the context of a surface related spin dependent non-equilibrium population immediately above and below the GaAs band-gap.

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