

Abstract Submitted  
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**Superconducting**

**properties of Zr-doped  $\text{Ni}_2\text{ZrGa}_{1-x}\text{Ge}_x$**  HEATHER STATT, BEN AMEND, ADAM COON, REBECA GARCIA DE JESUS, SAM GEORGE, ABBY HURLEY, KEFENG JIANG, MICAH MORRIS, NICK PORTER, JAYSON ROOK, YUKUN WANG, ZIWEI ZHANG, TIAGO SCHAEFFER, SAAD ALZAHIRANI, JEFFREY BROCK, MAHMUD KHAN, Miami Univ —  $\text{ZrNi}_2\text{Ga}$  is a Heusler compound of  $\text{AB}_2\text{C}$  formula that exhibits type-II superconductivity with a critical temperature of 2.9 K. The critical temperature of this compound has been attributed to its valence electron concentration of 6.75. It is interesting to investigate the effect of increased valence electron concentration on the critical temperature. In light of this, we have performed an experimental investigation on a series of  $\text{Ni}_2\text{ZrGa}_{1-x}\text{Ge}_x$  Heusler alloys by means of X-ray diffraction, magnetization, and electrical resistivity measurements. All alloys were found to primarily crystallize in the  $\text{L2}_1$  cubic structure at room temperature, with some secondary phases in samples with  $x > 0.15$ . The magnetization and electrical resistivity measurements revealed that all samples exhibit type-II superconductivity despite the increase in structural disorder across the series, and that the critical temperature decreases with Ge content. The experimental results and conjectures as to the role of Ge in determining the superconducting properties will be discussed.

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