Abstract Submitted
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Unconventional superconductivity in noncentrosymmetric Mo_3Al_2C[1] AMAR KARKI, DAVID YOUNG, PHILIP ADAMS, ILYA VEKHTER, DANA BROWNE, JULIA CHAN, EDEM OKUDZETO, LSU, RUSLAN PROZOROV, HYUNSOO KIM, ISU — We have presented experimental results of resistivity, magnetic susceptibility, penetration depth and specific heat measurements for a polycrystalline sample of the noncentrosymmetric superconductor Mo_3Al_2C. All measurements confirm a bulk superconducting transition at 9 K in this compound. A high value of the upper critical field $H_{c2}(0)$ suggests that pair breaking due to the Zeeman effect in Mo_3Al_2C is small. The specific heat jump $\Delta C/\gamma T_c$ at Tc was found to be 1.95, higher than the BCS value of 1.43 for a weakly coupled superconductor, suggesting that Mo_3Al_2C may be strongly coupled. In addition, evidence for unconventional superconductivity is clearly apparent in the electronic specific heat C_{es} and the penetration depth λ_s in the superconducting state, indicating an anomalous pairing mechanism and a possible nodal-gap structure in Mo_3Al_2C.

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