

Abstract Submitted
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Microwave properties of epitaxial MgB₂ films and micro-bridges¹

M.V. COSTACHE, G.X. MIAO, J.S. MOODERA, Massachusetts Institute of Technology — The high transition temperature and simple AlB₂ structure make the MgB₂ superconductor a promising new material for application in superconducting electronic devices. In order to reach this goal, in addition to the development of MgB₂ Josephson Junctions (JJ), we have explored the superconducting properties of lithographically patterned micron sized bridges in high quality epitaxial MgB₂ films. These thin film micron size wire bridges show JJ characteristics. The current-voltage (I-V) characteristics show the expected JJ behavior as a function of temperature, magnetic field and microwave radiation including hysteresis. Large change in the hysteresis behavior is observed when the microwave power is varied. The large hysteretic I-V can have potential as a memory element. The details will be discussed.

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