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Microwave resonant activation in hybrid single-gap/two-gap Josephson tunnel junctions[1] ROBERTO RAMOS, University of the Sciences, STEVEN CARABELLO, JOSEPH LAMBERT, JEROME MLACK, Drexel University, WENQING DAI, QI LI, Pennsylvania State University, KE CHEN, DANIEL CUNNANE, XIAOXING XI, Temple University — Microwave resonant activation is a powerful technique to study classical and quantum systems, experimentally realized in Josephson junctions. We have recently reported the first demonstration of resonant activation experiments on hybrid, thin film Josephson heterojunctions consisting of a multi-gap superconductor (MgB2) separated from a single-gap superconductor (Pb or Sn) by an insulating barrier [1]. In this presentation, we expound on several quantum signatures exhibited in superconducting-to-normal state switching in these devices, including a leveling off of the Tesc vs. T curve and Lorentzian peaks in the escape rate enhancement. We also discuss features which are commonly ascribed to multi-photon transitions between quantum levels inside a junction, and the implications of these. References: 1. S.Carabello, et. al., J. Appl. Phys. 120, 123904 (2016)

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