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**Doping dependence of fluctuation diamagnetism in High Tc superconductors** SUBROTO MUKERJEE, KINGSHUK SARKAR, Indian Institute of Science, SUMILAN BANERJEE, Weizmann Institute of Science, T. V. RAMAKRISHNAN, Banaras Hindu University — Using a recently proposed Ginzburg-Landau-like energy functional due to Banerjee et. al. Phys. Rev. B 83, 024510 (2011), we calculate the fluctuation diamagnetism of high-Tc superconductors as a function of doping  $x$  in addition to the magnetic field  $H$  and temperature  $T$  by employing classical Monte-Carlo simulations. We explicitly show that the doping dependence of our diamagnetism results are in good qualitative agreement and reasonable quantitative agreement with experimental data. Our calculations show that a model where the pairing scale increases and superfluid density decreases with underdoping produces features of the observed magnetization in the pseudogap region. In particular we show that the magnetization tracks the superconducting dome instead of the pseudogap temperature as seen in experiment and also comment on the determination of doping dependence of the upper-critical field.

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