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Universal superconducting gap to T_c ratio in the extended Hubbard model A. REYMBAUT, M. CHARLEBOIS, M. FELLOUS-ASIANI, Univ of Sherbrooke, L. FRATINO, Royal Holloway, Univ of London, P. SEMON, Univ of Sherbrooke, G. SORDI, Royal Holloway, Univ of London, A.-M. S. TREMBLAY, Univ of Sherbrooke — The universal ratio of the superconducting gap to transition temperature T_c has been one of the key successes of BCS theory. The explanation of the deviations from this ratio at strong electron-phonon coupling in turn confirmed the Eliashberg extension of BCS [1]. Recent "tomographic density of states" (TDoS) ARPES data on Bi2212 suggest that this ratio deviates strongly from the expectations of both approaches in cuprates [2]. We extract this ratio from cellular dynamical mean-field theory (CDMFT) calculations for the extended Hubbard model with a continuous-time quantum Monte Carlo solver and compare it with experiment. The result gives a universal behavior for this ratio as a function of doping over a wide range of values of the local and first-neighbor interactions. In addition, we compare the relation between the gap and the order parameter at low temperature with the Gutzwiller approach of YRZ [3]. This comparison is extended to a few zero-frequency quantities related to the pairing dynamics and extracted with the MaxEntAux method [4,5]. [1] J. P. Carbotte, RMP 62, 10271157 (1990) [2] T. J. Reber et al., arXiv:1508.06252 (2015) [3] K.-Y. Yang et al., PRB 73, 174501 (2006) [4] A. Reymbaut et al., PRB 92, 060509(R) (2015) [5] A. Reymbaut et al., PRB 94, 155146 (2016)

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