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**Entanglement of formation in the Kondo model at finite temperature** SEUNG-SUP LEE, JINHONG PARK, H.-S. SIM, Korea Advanced Institute of Science and Technology — We compute the entanglement of formation, a generalization of the entanglement entropy quantifying any bipartite entanglement in mixed states, in the Kondo model at finite temperature  $T$ , using a new approach [1,2] based on the optimal entanglement witness operator and the numerical renormalization group method. We focus on the entanglement between the Kondo impurity spin and the electrons lying inside distance  $L$  from the impurity. The entanglement characterizes the thermal suppression and the spatial profile of the macroscopic quantum correlations in the Kondo systems, providing the quantum information perspective of the Kondo cloud. We reveal the universal scaling behaviors of the entanglement at low  $T$  and large  $L$ . [1] S.-S. B. Lee and H.-S. Sim, Phys. Rev. A **85**, 022325 (2012). [2] S. Ryu, S.-S. B. Lee, and H.-S. Sim, Phys. Rev. A **86**, 042324 (2012).

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