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Andreev transport through side-coupled double quantum dots YOICHI TANAKA, Condensed Matter Theory Laboratory, RIKEN, NORIO KAWAKAMI, Department of Physics, Kyoto University, AKIRA OGURI, Department of Material Science, Osaka City University — We study the transport through side-coupled double quantum dots, connected to normal and superconducting (SC) leads with a T-shape configuration, using the numerical renormalization group. We find that the Coulomb interaction in the side dot suppresses the destructive interference effect typical of the T-shape geometry, and enhances the conductance substantially in the Kondo regime. This behavior stands in stark contrast to a wide Kondo valley seen in the normal transport. Moreover, the SC proximity penetrating into the interfacial dot pushes the Kondo clouds, which screens the local moment in the side dot, towards the normal lead to make the singlet bond long. The conductance shows a peak of the unitary limit as the cloud expands. It is further elucidated that two separate Fano structures appear in the gate-voltage dependence of the Andreev transport, and the corresponding line shape is quite different from the Fano-Kondo plateau observed in the normal transport.

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