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Kondo Effect in an Exactly Solvable Double Dot System with Singlet Groundstate ROBERT KONIK, Brookhaven National Laboratory — We analyze transport through a double dot system connected to two external leads. Each dot is treated as possessing a single active level. With symmetric couplings to the leads, only a single effective lead is available to interact with the double dot. We model the system through a generalization of the Anderson model which is exactly solvable via the Bethe ansatz provided certain, not particularly restrictive, constraints are placed upon the dot parameters. From this analysis we see that the zero temperature dot system at its particle-hole symmetric point favors singlet formation. Using exact solvability, we further determine how this double dot singlet evolves under increasing temperature and magnetic field together with changes of the gate voltage moving the dot-lead system away from particle-hole symmetry. We are able to analyze both the resulting transport signatures of this evolution and the effective energy scale governing the changes.

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