

Abstract Submitted  
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**Exact ground states for the periodic Anderson model at half filling in two dimensions** ZSOLT GULACSI<sup>1</sup>, University of Debrecen, Department of Theoretical Physics, Hungary — Recently, starting from a procedure based on the decomposition of the Hamiltonian in positive semidefinite operators, exact ground states have been deduced for the periodic Anderson model at finite value of the interaction at 1/4 and 3/4 filling even in three dimensions (PRL 91,186401,(2003); PRB 72,075130, (2005)), the method being so powerful that its application for disordered systems, at the same values of the filling, and two dimensions, is also possible (PRB 69, 054204, (2004)). Herewith we extend the procedure such to be applicable at half filling as well, in the presence of finite on-site Hubbard interaction acting at the level of the correlated band. The extensions lead to a method which uses extended operators, (e.g. linear combinations of the starting fermionic operators acting along the whole system), and also sublattice operators, in constructing the ground state wave functions. The ground states describing conducting spin-singlet states, are presented in two dimensions.

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Zsolt Gulacsi  
University of Debrecen, Department of Theoretical Physics, Hungary

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