Contribution Title:	POINT GROUPS, GALOIS COVERINGS, AND THEIR APPLICATIONS TO RG ANALYSES IN TWO-DIMENSIONAL LATTICE MODELS
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Recently, for solvable lattice models, it was shown that asymptotic behavior of the correlation function is expressed in terms of differential forms on Riemann surfaces of genus 1 [1-3]. Choosing a suitable parametrization, we found that point group of the system essentially determines the differential forms. We also found a one-to-one correspondence between point groups and Galois coverings of Riemann surfaces [4]. In this presentation we propose a renormalization group (RG) approach by the use of Galois coverings.

We consider the square-lattice Ising model, where the point group is C_{4v}. Using the fact that $C_{4v} \supset C_{2v}$, we construct a Galois extension of an elliptic function field. It follows that the extension corresponds to Landen's transformation, and that Landen's transformation gives a RG approach near the critical point [5]. The RG method derived here is expected to be a quite general one. It is shown that the same method is applicable to a wide class of solvable models possessing four- or six-fold rotational symmetry [2, 6]. With the help of series expansions, we discuss further generalizations to unsolvable systems.

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