

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

**The Integrable Chiral Potts Model: Quantum Group Methods
Applied to Superintegrable Case¹**

JACQUES H.H. PERK, HELEN AU-YANG, Department of Physics, Oklahoma State University — The integrable chiral Potts model resulted in the 1980s from a search of new solutions of the star-triangle (Yang–Baxter) equations for spin models with expected parafermionic excitations. Its structure relates to cyclic representations of quantum groups at roots of unity, while the so-called superintegrable subcase has additional Onsager algebra structure. Recently the authors have utilized this quantum algebraic information, to derive detailed explicit results for the eigenvectors in the ground state sectors and give new information for the eigenvectors in general. One result is the explicit derivation of the spontaneous magnetization without hidden assumptions, as both conjectures made earlier have now been proved. The explicit eigenvectors also lead to some results for correlation functions. We shall present a review of what has been done so far and discuss the current status of the research.

Helen Au-Yang and Jacques H.H. Perk, *J. Phys. A: Math. Theor.* **41**, 275201 (2008); **42**, 375208 (2009); **43** (2010) 025203 (2010); **44** 025205 (2011); **44**, 445005 (2011); arXiv:1108.4713; arXiv:1210.5803.

¹Supported in part by the National Science Foundation under grant No. PHY-07-58139

Jacques H.H. Perk
Department of Physics, Oklahoma State University

Date submitted: 07 Nov 2012

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