

Abstract Submitted
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Ferruquadrupolar phase of the Heisenberg model with bilinear and biquadratic interactions¹ ANTONIO PIRES, Universidade Federal de Minas Gerais — The Heisenberg antiferromagnet with bilinear and biquadratic exchange interactions has been studied using several techniques. In contrast to bilinear interactions models, quantum spin models with biquadratic interactions present a phase diagram qualitatively different from their classical counterparts, as for instance nonmagnetic phases such as the quadrupolar phase. In this work I will study the ferruquadrupolar phase of the $S = 1$ Heisenberg model with bilinear and biquadratic exchange interactions on the square lattice using a $SU(3)$ Schwinger boson formalism in a mean field approximation. This nonmagnetic phase is characterized by a finite quadrupole moment. I will calculate the quadrupole moment and the static spin structure factor for several values of the parameters involved in the model. The results obtained will also be compared with the ones obtained from other theories.

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