A quantum model of color perception

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Résumé

The phenomenon of color perception interested several theoretical physicists and mathematicians as Newton, Maxwell, Helmholtz, Grassmann and Schrödinger. This last proposed, in 1920, a set of axioms to describe the space of perceived colors C which has been completed in 1974 by Resnikoff, who determined the structure of C as a symmetric cone of dimension 3. Using the tight link between symmetric cones and Jordan algebras on one side, and the role of Jordan algebras in the algebraic formulation of quantum theories on the other side, it is possible to build a coherent quantum theory of color perception. Remarkably, this novel model incorportates intrinsically Hering's opponency. In the talk I will discuss the most important results of this quantum model of color perception. This is a joint work with Michel Berthier.

Mots-Clés: Color perception, quantum information

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