Orthomodular lattice in Minkowski space-time

Wojciech Cegła

Institute of Theoretical Physics

Wrocław University

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Fakulta jaderná a fyzikálně inženýrská ČVUT

Trojanova 13, 12000 Praha

Abstrakt: An orthomodular structure, which is crucial in quantum logic approach to Quantum Mechanics, one can find also in Minkowski space-time. After a short (historical) introduction to quantum logic I will discuss a lattice structure in Minkowski space-time where an orthogonality relation is given by the light cone. As a main result an orthomodular lattice without covering law will be constructed.

[1] L. Bernardinello, L. Pomello, S. Rombola, On Orthomodular Posets Generated by Transition Systems, Electronic Notes in Theoretical Computer Science 270 (2011)

[2] W. Cegła and A. Florek, Causal logic of Minkowski space, Commun. Math. Phys. 57 (1977)