

Osterwalder-Schrader reconstruction for unitary full vertex operator algebras

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We begin by providing a brief overview on the Wightman axiomatization for quantum field theory and the Osterwalder-Schrader reconstruction results. More in details, Osterwalder and Schrader showed that if the correlation functions in the Euclidean space-time verify a set of axioms, then the Euclidean correlation functions produce distributions that verify the Wightman axioms, thus they give rise to a quantum field theory in the Wightman formalism.

For a reasonable class of unitary full Vertex Operator Algebras, we construct correlation functions that verify the Osterwalder-Schrader axioms including a regularity condition on the correlation functions known as linear growth. Hence, by Osterwalder-Schrader machinery, Wightman distributions exist as boundary values of the analytic extension of the Euclidean correlation functions. Since such construction is rather abstract, we will sketch how to recover Osterwalder-Schrader reconstructed Wightman distributions using full VOAs.

This talk is based on a joint work in progress with Y. Moriwaki (iTHEMS) and Y. Tanimoto (Rome "Tor Vergata"), partially appeared in arXiv:2407.18222.