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N-Particle Scattering in Wedge-local QFT

I will present my results on the construction of Haag-Ruelle-type scattering states with arbitrarily many particles in the general operator-algebraic setting of massive wedge-local quantum field theory. In this context, wedge-geometrical obstructions invalidate conventional Haag-Ruelle arguments beyond the two-particle case. These geometrical limitations are overcome in my work by wedge-duality arguments. Ample testing grounds for my results are provided by various recently constructed wedge-local models with non-trivial scattering on four-dimensional Minkowski space-time (Grosse-Lechner, Buchholz-Lechner-Summers). These models are presently being investigated regarding qualitative particle-phenomenological features such as asymptotic completeness. (partially based on arxiv:1711.02569, to appear in CMP)