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Carmine De Rosa: Achronal localization and representations of the causal logic

Friday, May 8, 2026 3:00 PM (30 minutes)

Achronal localization has recently been proposed as a natural framework for relativistic quantum localization. In this talk, I will present a general covariant construction of achronal localizations from conserved currents via their flux through achronal surfaces. I will discuss the case of the massive scalar boson, showing how probability currents with causal kernel and the stress-energy tensor both give rise to covariant representations of the causal logic. This provides a covariant realization of causal localization for an elementary relativistic quantum system. The construction relies on a suitable divergence theorem for open sets with almost Lipschitz boundary, which will also be briefly described.