UNIVERSITÀ DI TRENTO
Dipartimento di Matematica

DOTTORATO

CYCLE 35th
ORAL DEFENCE OF THE PHD THESIS

Tuesday 19th March 2024 – at 12.00 am
Polo Ferrari 1
Room A218
The event will take place in presence and online through the ZOOM platform.
To get the access codes please contact the secretary office

Antonio Moscato

PhD Student in Mathematics

The Resolvent Algebra Perspective on Point Interactions: A First Glance

Abstract:
In 2008, D. Buchholz and H. Grundling introduced a novel C*-algebra as candidate for canonical quantum mechanical modeling, the resolvent algebra. Such an algebra has proved to be better suited than other formerly used C*-algebraic formalisms (as for example, those based on the Weyl algebra) in various interesting physical situations. In this talk, the basics of such a formalism are recalled, then, original results, concerning the capability of such an algebra to accommodate point interactions dynamics, are exposed. Particularly, a non-relativistic spinless particle, undergoing one, finitely-many and countably-many different fixed centers point interactions moving on the real line is considered, showing that the resolvent algebra of the case is indeed stable under observables time evolution and the Hamiltonians of the case are affiliated to it. The second system attention is focused upon consists of n distinguishable spinless particles moving on the real line and interacting via a two-body delta potential: the affiliation of the correspondent Hamiltonian to the algebra is shown and discussed.

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CONTATTI
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