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# Pattern recognition and track reconstruction in SuperNEMO and NEMO-3

Following the unique strategy pioneered by NEMO-3, the SuperNEMO experiment can identify the neutrinoless double beta ($\beta\beta$) decay of enriched isotopes by combining the measurement of the energy of each emitted electron in the calorimeter and the characteristic topology detected for their trajectories in the magnetized wire chamber: two tracks of negative charge ejected at the same time by a common vertex on the source.

The full kinematical reconstruction of the event allows to reject radioactive backgrounds and constrain the theoretical model behind a neutrinoless $\beta\beta$-decay. A suite of techniques has been developed to convert the collection of hits detected by the drift cells operated in Geiger mode into sets of tracks belonging to charged particles ($e^-, e^+, \alpha^{++}$). First, the wire hits are clustered based on requirements of continuity and boundary conditions to match the hits on the surrounding calorimeter; each cluster is then explored for pattern recognition, leading to identification of broken-lines (with cellular automaton technique), straight lines and helices (with the method of Legendre transform); finally a coherent scenario of tracks is assembled from these structures. The reconstruction of an event topology allows to give tracks an id, find their generation and disappearence point, associate them with energy (as measured by the calorimeter) and calculate their time-of-flight.

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**Track Classification:** Neutrinoless Double Beta Decay