Theoretical Nuclear Physics

C 1 Dispersion Relations
C 2 Nonlocality Problems
C 3 Nuclear Transitions in Muonic molecules

Collaborators:
Dr. P.E. Hodgson (Oxford)
Prof. R. Lipperheide (Berlin)
Dr H. Leeb (Vienna)
Prof. G. Pantis (Ioannina)
Prof. G. Rawitscher (Storrs)
Prof. Belyaev and members of his group (Dubna)
Dr S.A Rakityansky (Dubna).

Various theoretical questions are addressed the most important being,
* Dispersion relations,
* Non-locality problems, and
* Nuclear Transitions in Myonic molecules

Active Projects:

[C.1] Dispersion Relations

Purpose:
Importance of dispersion corrections in optical potentials

Published work


[C.2] Nonlocality Problems

Purpose:
Various aspects of nonlocality and localization methods are considered

Published work
2. G. Pantis and S. A. Sofianos, "Inverse Scattering Problem for a specific Resonating Group--type Nonlocality" Accepted: Phys. Rev. C.

[C.3] Nuclear Transitions in Muonic molecules

**Purpose:**

Various low energy transitions of nucleon(s) transfer between nuclei confined in muonic molecules are calculated using few--body methods and a scheme analogous to the Linear Combination of Atomic Orbitals (LCAO) used in atomic and molecular physics. Examples: p - mu - 10Be ----> t - mu - 8Be, d - mu - 7B ----> p- mu- 8Be^2+ d + 6Li ----> 8Be^*

**Published work**


