

Recent Progress in Theories of Reactions off Stability

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This talk will review the status of art of nuclear and Coulomb breakup [1-6] from projectiles off stability and the influence of such reaction channels on the elastic scattering of the same projectiles [7-8]. The effect of the final state interactions between the breakup particle and the core [5,6] and target [1-4,9,10] nuclei will be clarified. Numerical calculations aiming at determining the best observables to be measured will be presented. To this goal new results will be also discussed showing the feasibility of a novel type of experiment involving heavy projectiles far from stability on heavy targets [9]. Finally the search for proton haloes will be mentioned [2,10].

References

- [1] J. Margueron, A. Bonaccorso and D. M. Brink. Nucl. Phys. A 720 (2003) 337.
- [2] A. Bonaccorso and D. M. Brink and C. A. Bertulani. Phys. Rev. C 69 (2004) 024615.
- [3] G. Blanchon, A. Bonaccorso and N. Vinh Mau, Nucl. Phys. A 739 (2004) 259.
- [4] F. Carstoiu, E. Sauvan, N. A. Orr, A. Bonaccorso. Phys. Rev. C 70 (2004) 054602.
- [5] G. Blanchon, A. Bonaccorso, D.M. Brink, A. García-Camacho and N. Vinh Mau. nucl-th/0611049. Nucl. Phys. **A784** (2007) 49.
- [6] G. Blanchon, A. Bonaccorso and D.M. Brink and N. Vinh Mau. 0704.1781 [nucl-th]; Nucl.Phys. A (2007) doi:10.1016/j.nuclphysa.2007.04.014
- [7] A. Bonaccorso and F. Carstoiu. Nucl. Phys. A 706 (2002) 322.
- [8] A. A. Ibraheem, A. Bonaccorso. Nucl. Phys. A 748 (2005) 414.
- [9] A. García-Camacho, A. Bonaccorso and D.M. Brink, nucl-th/0607021, Nucl. Phys. **A776** (2006) 118.
- [10] A. García-Camacho, G. Blanchon, A. Bonaccorso and D.M. Brink. All orders proton breakup from exotic nuclei. PRC (2007) in press.