Will neutron emission, from nuclei beyond the neutron drip-line be observed?

L. S. Ferreira ¹, and E. Maglione^{1,2}

One of the interesting questions in contemporary experimental and theoretical research in nuclear physics, is the determination of the position of the nuclear drip lines. Whereas for protons, the limits of stability are known up to charges Z= 83, for neutrons, we only arrive to fluorine. The advent of future intense neutron rich radioactive ions beams will furnish a promising method to reach the neutron drip-line. Therefore, it is important to analyze in a theoretical perspective possible nuclear mechanisms capable of being observed. In the present work, we will discuss the possibility of observing decays by neutron emission in the region of the neutron drip line, and give an estimation for the corresponding half-lives. These studies, may provide guidance for the experimental observation of these exotic nuclei.

¹ Centro de Física das Interações Fundamentais, and Departamento de Física, Instituto Superior Técnico, Av. Rovisco Pais, P1049-001 Lisbon, Portugal.

² Dipartimento di Fisica "G. Galilei", Via Marzolo 8, I-35131 Padova, Italy and Istituto Nazionale di Fisica Nucleare, Padova, Italy.