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## Proton emission and low lying states in proton drip nuclei

Measuring the proton emission decay widths and corroborating them with microscopic calculations have yielded rich information about the structure and decay properties of proton drip nuclei. The spectroscopic data on the low lying states of these nuclei are also crucial in complementing the information from decay widths. Apart from proton emitters, the spectroscopic data of low lying states of neighbouring nuclei are also useful in understanding the nuclear structure at this extreme. A few such cases where the data is scarce or not available will be pointed out and in such cases the importance of our recently proposed approach for rotation particle coupling will also be highlighted. The particle rotor model (PRM) is widely used and quite successful for a long time, in explaining the observed rotational spectra of several nuclei [1,2]. Microscopic theories for proton emission utilizing this approach is regarded as one among the most robust and successful approaches [3,4]. We propose a formalism named as the coupling matrix approach with which the deviation from the rotational behaviour of the core can be taken in to account properly. The key idea of this formalism is based on the coupled channels approach for odd-even nuclei suggested in Refs. [1,5] and was successfully applied to study the nucleus  $^{151}\text{Lu}$  [6]. Extension of this method to odd-odd nuclei and application to proton emitters will be discussed in the workshop.

### References

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