

Abstract Submitted
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Large cross sections for transitions with a small energy difference J.H. MCGUIRE, Tulane University, KH. KH. SHAKOV, Tulane University — Cross sections for transitions between states with small differences in energy can be quite large. An example is the 1s-2p transition in atomic hydrogen caused by the impact of a fast charged particle [1] or a photon [3]. In such cases the actual cross section may become much larger than the simple geometric cross section. Such transitions are often difficult to observe in the laboratory. However, they can be evaluated numerically. This effect can be significant in analysis of astrophysical data, as pointed out by T. Nandi [2]. I discuss a few examples of calculations and give a physical explanation for this effect.

[1] J.H. McGuire, D. J. Land, J. G. Brennan and G. Basbas, Phys. Rev. **A19**, 2180 (1979).

[2] Kh.Kh. Shakov and J.H. McGuire, Phys. Rev. **A67** 033405 (2003).

[3] T. Nandi, private communication, 2008.

Jim McGuire
Tulane

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