

Modelling the Nucleon Axial Form Factor in a Finite Volume

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May 20, 2011

Abstract

Lattice quantum chromodynamics is to date the only way to solve QCD non-perturbatively from first-principles. Although it has enjoyed much success there are still many challenges involved in matching calculated observables with their experimental values. In this thesis we use a chiral model to study the finite volume effects on the axial form factor in order to understand the discrepancy between lattice and experimental results. We also examine the possibility of extra corrections arising from a spin-flip arising through the tensor interaction between neighbouring nucleons on the periodic lattice.

Statement of Originality

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Acknowledgements

I'd firstly like to thank my supervisors Tony Thomas and Ross Young for their constant patience and willingness to help - even when I often turned up unannounced.

I'd also like to thank all my office mates, Adrian, Ben, Daniel and Sam for providing a place to ask those questions I should already have known the answer to and especially to Ben who volunteered to have a look at my thesis. To my house-mates Brad and Tyson, and all the guys in my small group at church, to be able to talk and hang out after uni hours meant I was ready when it was time for work. To Dad, Mum, Jason, Josiah and Becky, thank you for bearing with all the late hours and then for bearing me literally while I had my injured ankle.

And finally I'd like to thank God for his support and guidance throughout the year.

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