

# Thesis Completion Plan

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The writing of my thesis will likely begin in March 2019. By then I hope to have at 4 articles published in peer-reviewed journals. My very first project is currently accepted for publication in JHEP [1]. A second arXiv publication is currently in the review process by PRL [2]. The remaining articles are currently written up and waiting feedback from collaborators.

In March 2019, I will then be prepared to start writing introduction and conclusion materials. The chapters on the details of my research will be heavily based on my publications. The members of my viva committee will be decided as soon as the writing process begins and invitations will be sent out in March to guarantee the presence of researchers who are experts in my field. Writing will continue for 3 months until late June. I will then be in the position to receive feedback from my supervisor Prof. Silvia Pascoli and hand in the thesis in early July 2019. The viva is then planned to take place before September 2019.

The thesis chapters will likely contain the following chapters:

1. Introduction (Standard Model and Neutrino Physics)
2. Neutrino Oscillations in and beyond the Standard Model
3. Searching for sterile neutrinos at  $\nu$ STORM
4. Neutrino trident scattering at near detectors
5.  $Z'$  in neutrino scattering at DUNE
6. Dark neutrino portal to radiative neutrino masses
7. Testing dark neutrino portals at scattering experiments
8. Conclusions.

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[1] P. Ballett, M. Hostert, S. Pascoli, Y. F. Perez-Gonzalez, Z. Tabrizi and R. Zukanovich Funchal, arXiv:1807.10973 [hep-ph].  
[2] C. A. Argelles, M. Hostert and Y. D. Tsai, arXiv:1812.08768 [hep-ph].