nuPRISM Paper Status and Workshop

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nuPRISM Paper

- We would like to prepare a 10-15 page paper aimed at PRD describing the nuPRISM concept and introducing the types of physics measurements that can be made at nuPRISM
- Additional papers can be written giving details of physics capabilities or technical details of the detector, i.e. a short-baseline oscillation paper, cross-section measurements paper or novel concepts for the detector design
- Kendall and I (after some delays) have started writing the paper
- Outline:
  - Introduction
    - The challenges of cross-section modeling in current and future neutrino oscillation experiments
    - Introduction to the off-axis beam concept and its application to solving the neutrino cross-section modeling problem
    - Discussion of nu_e and their cross section modeling in experiments with conventional bems
  - Description of the nuPRISM concept
    - Description of the beam and detector configuration
    - Overview of measurements that can be made in nuPRISM
    - Importance of flux modeling

nuPRISM Paper, Cont.

- Outline, Cont.:
  - Measurements with muon neutrinos
    - Introduction to the linear combination method
    - Application for mono-chromatic beams
    - Application for muon neutrino disappearance
  - Measurements with electron neutrinos
    - Short baseline sterile analysis overview and sensitivities
    - Method for measuring nue/numu cross section ratio and application to the nue(bar) appearance measurements for CP violation
  - Other measurements
    - Other neutrino cross section measurements
    - Potential for constraining important systematic errors for atmospheric or proton decay measurements
  - Brief description of the detector design and nuPRISM-lite?
  - Summary

nuPRISM Paper, Cont.

- The nuPRISM concept paper is now in the GitHub repository
  - nuPRISM/Documents/Papers/nPConcept
- You may receive emails from Kendall or myself over the next couple of weeks about providing content for the paper

nuPRISM Workshop

- We would like to have a nuPRISM workshop at Kavli IPMU March 16-20
- Will focus on work towards the J-PARC PAC proposal
  - Mostly working sessions and few talks. Talks will focus on progress throughout the week
  - Include sessions on the detector design as well as physics analysis
- All who want to contribute can attend
- Doodle poll results:
  - Monday, March 16 - 10 people
  - Tuesday, March 17 - 11 people
  - Wednesday, March 18 - 9 people
  - Thursday, March 19 - 8 people
  - Friday, March 20 - 7 people
- If you haven't filled out the poll, please do so we can set the agenda to match the availability of attendees

nuPRISM Software - GitHub

- We have started the migration of the nuPRISM software to GitHub
  - The current table based analysis software has been migrated
  - We will also keep documents such as proposals, papers and technical notes in the nuPRISM organization on GitHub
- Some preliminary instructions for accessing the analysis software have been circulated by email in preparation for today's software tutorial
- A page with more detailed documentation will be prepared in the near future
- Please create a GitHub account and send me your username so you can be added to the nuPRISM organization and access the nuPRISM software and documents