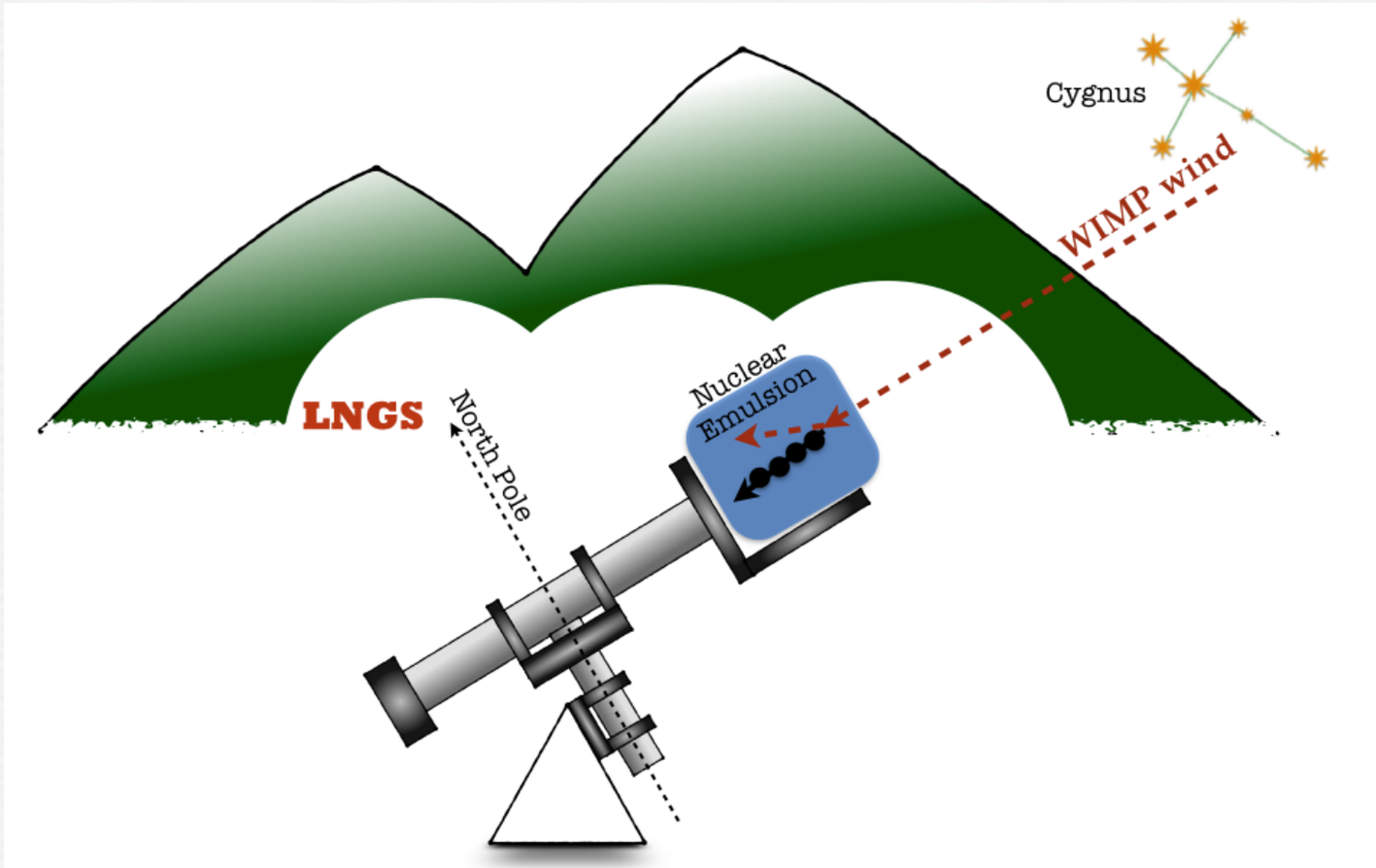
Toward TDR Preparation



A. Di Crescenzo
INFN and University of Naples

NEWS CM Meeting
Napoli, 28 October 2016

Table Of Content

1. Introduction
2. Detector concept
3. Analysis chain
4. Detector layout
5. Background evaluation
6. Results of 10 g test exposure
7. Discovery potential and exclusion limits
8. Toward neutrino floor

COLOR CODES:

DONE

IN PROGRESS

TO DO

Detector Concept

1. Introduction
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1. NIT emulsions (***T. Naka***)
   - Production line
   - Pouring
   - Development

IN PROGRESS

2. Read-out systems
   - Italian system ***(A. Alexandrov)***
   - Japanese system ***(A. Umemoto, M. Yoshimoto)***

IN PROGRESS

Analysis Chain

1. Introduction
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(A. Alexandrov, T. Katsuragawa, O. Sato)

1. Cluster and grain reconstruction
   - Data: Kr, C, electrons, nano-particles
2. Track reconstruction
   - Data: alpha tracks

IN PROGRESS

3. Shape analysis
   - Data: Kr, C, electrons, nano-particles
   - Efficiency VS ellipticity (***T. Asada)***
4. Polarization analysis
   - Data: Kr, C, electrons, nano-particles
5. Color camera
6. 3D analysis

TO DO

Detector Layout

1. Introduction
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(N. D'Ambrosio, V. Tioukov)

1. Shield for 1 kg mass experiment
2. Equatorial telescope

Background Evaluation

1. Introduction
2. Detector concept
3. Analysis chain
4. Detector layout
5. Background evaluation
6. Results of 10 g test exp
7. Discovery potential and
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(T. Naka, V. Gentile)

1. Background from dust — IN PROGRESS
2. Background from fog
3. Intrinsic radioactivity — IN PROGRESS
   - Carbon-14
   - Radiogenic neutrons — DONE
4. External radioactivity — IN PROGRESS
   - Cosmogenic neutrons
   - Environmental neutrons
   - Environmental photons
5. Background during transportation — IN PROGRESS

Results of 10g Test Exposure

1. Introduction
2. Detector concept
3. Analysis chain
4. Detector layout
5. Background evaluation
6. Results of 10 g test exposure
7. Discovery potential and exc
8. Toward neutrino floor

1. Test exposure layout
   (N. D'Ambrosio, V. Tioukov)

   IN PROGRESS
2. Background estimation
   (V. Gentile)

   IN PROGRESS
3. Test results ***(A. Alexandrov, A. Umemoto, O. Sato)***

   TO DO

Discovery Potential And Exclusion limits

1. Introduction
2. Detector concept
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6. Results of 10 g test expos
7. Discovery potential and exclusion limits
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(T. Asada, A. Di Crescenzo, N. Di Marco)

1. Simulation of straggling in NIT
2. Sensitivity evaluation
3. Exclusion limits

DONE

Toward Neutrino Floor

1. Introduction
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1. Background reduction
2. Synthetic polymers
3. Cryogenic system
4. Large mass production
5. Upgrade of optical systems
6. Improvement of scanning speed
7. Threshold reduction
8. Luminescence light ***(Ichiki)***

TO DO

Experiment Name

INFN and University of Naples

What's In A Name?

(W. Shakespeare)

Proposals:

1. NEWS-dm (dm: directional measurement)
2. NEWS-DM
3. NEWSdm
4. NEWSDM
5. D-NEWS
6. NE-WS
7. NEWWS