# A White Paper to the Community Summer Study (CSS) 2013

# A staged Muon-based Neutrino and Collider Physics Program

# By the MAP team

# A tentative outline:

# Introduction

## Landscape of High Energy Physics

## Motivation for Muon-based facilities

# Neutrino Physics:

## Short baseline

## Long baseline

# Muon Collider Physics

## Standard Model

### Higgs

### …..

## Beyond Standard Model (BSM)

### Super-Symmetry (SuSy)

### …..

# A staged Muon based Facility Program

## Logics of the staged approach (interest for physics , validation of technology, affordable step, reuse of equipment, etc…

## NuSTORM

### Physics outlining the specificity of muon based facility

### Facility description

### R&D and technology validation

## A Low Luminosity Neutrino Factory

### Physics outlining the specificity of muon based facility

### Facility description

### R&D and technology validation

## A Neutrino factory (@ Homestake?)

### Physics outlining the specificity of muon based facility

### Facility description

### R&D and technology validation

## A Muon based HIGGS factory

### Physics outlining the specificity of muon based facility

### Facility description

### R&D and technology validation

## A TeV scale Muon Collider

### Physics outlining the specificity of muon based facility

### Facility description

### R&D and technology validation

# Conclusion

# References