Curriculum Vitae

Name:	Sungbin Oh	Telephone:	+82 10 4922 0834 (Mobile)
Nationallity:	South Korea	Email:	sungbin.oh@cern.ch
		Office:	Bdg. 23, Room305,
			Seoul National University
			Seoul
			151-742, South Korea

Education:

2013 - 2021   PhD in Physics, Experimental Particle Physics, Seoul National University, Korea

Title : Searching for heavy neutrinos using the LHC proton-proton collision data at $\sqrt{s} = 13$ TeV collected by the CMS detector

Supervisor: Prof. Un-ki Yang

2009 - 2013   BS, Department of Physics and Astronomy, Seoul National University, Korea

Employment:

2013 - 2021   Research Assistant (CMS experiment), Seoul National University, Korea

Research Interests:

Exotic BSM searches at colliders, neutrino physics (Leptonic CP-phase, mass generation mechanism)

Research Experience:

Physics Analyses

2018 - 2021 :   PhD thesis work on the search for pair production of heavy neutrinos (to be submitted to JHEP 2021)

2016 - 2018 :   Search for heavy Majorana neutrinos in same-sign dilepton channels in proton-proton collisions at $\sqrt{s} = 13$ TeV, JHEP01(2019)122

2013 - 2016 :   Search for heavy Majorana neutrinos in $e^{\pm}e^{\pm}$ plus jets and $e^{\pm}\mu^{\pm}$ plus jets events in proton-proton collisions at $\sqrt{s} = 8$ TeV, JHEP04(2016)169

Hardware

2018 - 2021 :   Cosmic ray trigger and multi-wire drift chamber for cosmic ray test setup

2017 - 2018 :   GEM detector assembly and quality control at CERN, Geneva

Software

2018 - 2021 :   Development of SKNtuple used for SNUCMS users

2014 - 2015 :   Level 1 pixel trigger algorithm developement for the CMS detector at High Luminosity LHC

Honors:

2021   Graduate student research award
on thesis work, Seoul National University
2015   Best talk award, Search Results on Heavy Neutrino in e-mu dilepton channel at the CMS
@ KPS Fall Conference
2014   Best talk award, Level 1 pixel trigger algorithm developement for the CMS detector at HL-LHC
@ Korean Physics Society (KPS) Fall Conference

List of talks:

International conferences & workshops
2021   Tests of neutrino mass models at CMS @ NuFACT 2021, Cagliari, Italy

2020   Searches with Heavy Neutrinos @ CMS EXO Workshop 2020, CERN, Geneva

2018   Search for Heavy Majorana Neutrinos with the Same-Sign Dilepton plus
Jets Channel with CMS at 13 TeV, @ Neutrino 2018, Heidelberg

        Search for Heavy Majorana Neutrinos with the Same-Sign Di-lepton plus
Jets Channel with CMS at 13 TeV, @ Winter LHCC 2018, Geneva

2017   Heavy Neutrino in leptons+jets final states @ CMS EXO Workshop, Brussels

2016   Probing Majorana Neutrinos at the CMS, @ ICHEP 2016, Chicago

National conferences & workshops
2021   Search for pair production of heavy Majorana neutrinos using
Full Run2 proton-proton collision data of the LHC at 13 TeV collected by the CMS detector
@ Korean Physics Society (KPS) Spring Conference

2020   Search for pair production of heavy neutrinos via Z' based on the left-right symmetric
extension of the Standard Model at CMS using Full LHC Run2 data of proton-proton
collisions at $\sqrt{s} = 13$ TeV @ KPS Spring Conference

2019   Search for pair production of heavy neutrinos via Z' based on the left-right symmetric
extension of the Standard Model at CMS using Full LHC Run2 data of proton-proton
collisions at $\sqrt{s} = 13$ TeV @ KPS Fall Conference

        Searches for Z primt to NN with dilepton and at least two jets
@ Korea CMS workshop

2017   Heavy Neutrino search with left-right symmetric extension of the Standard Model
@ 2nd SNU-BRL workshop

2016   Heavy Neutrino Searches
@ Korea CMS workshop

2015   Search Results on Heavy Neutrino in e-mu dilepton channel at the CMS
@ KPS Fall Conference

Searches for heavy Majorana neutrinos in same-sign dimuon and dielectron events
at the CMS @ KPS Spring Conference

2014   Level 1 E/gamma Trigger Algorithm based on Pixels for CMS detector at LHC
@ KPS Fall Conference

Institution-wise seminar

2021   Neutrino interactions @ Seoul National University (SNU) HEP Friday lunch seminar

2020   How to measure muon g-2? @ SNU HEP Friday lunch seminar

Spontaneous symmetry breaking of the LRSM @ SNU CMS Heavy neutrino team seminar

PUPPI, Soft Drop, and Jet energy corrections @ SNU CMS Heavy neutrino team seminar

SNU multiwire drift chamber tutorial @ SNU HEP Friday lunch seminar

Introduction to Seoul National University CMS group
Lectures on "History of particle accelerators, LHC, and CMS" @ SNU HEP Friday lunch seminar

Searches for invisible decay of Z prime at Belle II @ SNU HEP Friday lunch seminar

2019   New Evidence Supporting the Existence of the Hypothetic X17 Particle
@ SNU CMS Heavy neutrino team seminar

Reactor Anomalies @ SNU HEP Friday lunch seminar

Gauge hierarchy problem of the SM @ SNU HEP Friday lunch seminar

An upper limit on electron antineutrino mass from Troitsk experiment
@ SNU CMS Heavy neutrino team seminar

Test of lepton universality with $B_0 \to K_0^{(*)} ll$ decays @ SNU HEP Friday lunch seminar

Papers:

Publications

2015 - 2021   About 600 papers from the CMS collaboration

    Primary Author   Search for heavy Majorana neutrinos in same-sign dilepton channels in proton-proton
collisions at $\sqrt{s} = 13$ TeV, JHEP01(2019)122

Search for heavy Majorana neutrinos in $e^{\pm}e^{\pm}$ plus jets and $e^{\pm}\mu^{\pm}$ plus jets events
in proton-proton collisions at $\sqrt{s} = 8$ TeV, JHEP04(2016)169

Search for Heavy Majorana neutrinos and Z prime bosons in proton-proton collisions
at $\sqrt{s} = 13$ TeV using events with two same flavor leptons and at least two jets,
to be submitted to JHEP

Internal documents

CMS Analysis note 2019/083
  Search for resolved and boosted heavy neutrinos decaying from right-handed W_R bosons in CMS using $\sqrt{s} = 13$ TeV Run2 Data

CMS Analysis note 2018/080
  Search for heavy neutrino and Z prime in pp collisions at $\sqrt{s} = 13$ TeV

CMS Analysis note 2017/291
  Search for Heavy Majorana Neutrinos in Same-Sign Dilepton Events in pp collisions at $\sqrt{s} = 13$ TeV

Technical Skills:

Operating Systems:	Windows, Linux, OSX
Programming:	C/C++, Python, LaTeX, shell script (https://github.com/sungbinoh)
Electronics:	NIM/VME logic (Setting multi-wire drift chamber)
	Gas Electron Multplier (GEM) detector assembly and quality control
	(for the CMS collaboration)
Analysis software:	Root

Teaching Experience:

2016 - 2021 :	SPARK chamber club supervisor
2013 - 2015 :	Teaching Assistance (General physics, electrodynamics, high energy physics)

Languages:

Korean	Mother tongue
English	Good communication and research skill

References:

Un-ki Yang
Prof. Department of Physics and Astronomy, Seoul National University
ukyang@snu.ac.kr

Su-Yong Choi
Prof. Department of Physics, College of Science, Korea University
suyong@korea.ac.kr

Niki Saoulidou
Prof. Physics Department, University of Athens
Niki.Saoulidou@cern.ch