

**H2020-MSCA-RISE-2014:
Third 'Non-Minimal Higgs' Meeting**

**Toyama, 6&7 March 2017
(c/o HPNP 2017)**

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Participant number (as table §A.2)	Partnership Member	Legal Entity Short Name	Academic (Y/N)	Country
	<u>Beneficiaries</u>			
1	University of Southampton	Soton	Y	UK
2	Instituto Superior de Engenharia de Lisboa	ISEL	Y	Portugal
3	Uppsala University	UPPSALA UNIVERSITET	Y	Sweden
4	University of Helsinki	HELSINGIN YLIOPISTO	Y	Finland
5	Laboratoire de Physique Theorique (LPT), University Paris-Sud	UPSud	Y	France
	<u>Partner Organisations</u>			
6	University of California, Santa Cruz, USA	UC	Y	USA
7	Université Abdelmalek Essaadi, Tangiers, Morocco	UAE	Y	Morocco
8	Carleton University	Carleton University	Y	Canada
9	University of Toyama	UT	Y	Japan
10	Zewail City of Science & Technology	Zewail City of Science & Technology	Y	Egypt

Non Minimal Higgs – RISE framework

NonMinimalHiggs is a Research and Innovation Staff Exchange (RISE) project.

The project (number 645722 of the H2020-MSCA-RISE-2014 call, June 2015-May 2019) focuses on new physics models with a non-minimal Higgs sector. PI is SM, Co-PI is RRdS, others are CoIs.

There have been collaborations in the past between some of the nodes, though this not a pre-requisite.

The RISE framework enhances and expands this Higgs physics network, by providing effective skill development, both subject specific and transferable, for the benefit of both ESRs and ERs.

RISE Objectives:

The RISE scheme will promote international and inter-sector collaboration through research and innovation staff exchanges, and sharing of knowledge and ideas from research to market (and vice-versa) for the advancement of science and the development of innovation.

The scheme fosters a shared culture of research and innovation that welcomes and rewards creativity and entrepreneurship and helps to turn creative ideas into innovative products, services or processes.

RISE Instruments:

One-month long secondments of ESRs & ERs across institutions:

- 1. Includes outgoing ones from EU members and associates into Third Countries & non-EU*
- 2. Excludes inter-EU ones (members and/or associates) & incoming ones from non-EU*

Workshops

Non Minimal Higgs - Motivations

- The Standard Model (SM), the theoretical framework which predicted the experimental discovery of the Higgs boson, is incomplete
- It cannot explain other physics phenomena observed in the Universe (why there is dark matter, why there are more particles than antiparticles, why neutrinos are massive, etc.)
- There is therefore a need to go Beyond the SM (BSM)
- The Higgs mechanism for the generation of mass must be a cornerstone of any BSM scenario
- We are therefore exploring scenarios that embed the Higgs mechanism in a (non-minimal) form suitable for BSM physics
- Their manifestations may provide the unlocking key to what BSM physics is realised in Nature
- **Three Work Packages (WPs)**
 - 1. Theory and Phenomenology (leader Prof HE Haber, UCSC)*
 - 2. Tools and database (leader Dr R Santos, ISEL)*
 - 3. Workshops (leader Dr R Enberg, Uppsala)*
- Webpage: <http://theory.physics.helsinki.fi/~risehiggs/> (will migrate, TBD)

Consortium Meetings

Essentially collaboration workshops

Past & present:

2015 Warsaw (pegged to Scalars 2015, December 6 & 8)

2016 Uppsala (pegged to Charged 2016, October 7)

2017 Toyama (pegged to Higgs as a Probe of New Physics 2017, March 6&7)

Future:

2018 Orsay (pegged to Higgs Hunting 2018, July)

2019 Helsinki (standalone wrap-up, May)

Proposal by Egyptian node of an additional meeting in ZCST, Hurghada (w/ trip to Luxor) (in late 2017 or 2018) using RISE funds on a matching funds basis against Egyptian (ZCST & Government) and ICTP grants. This event is primarily meant as a training session for ESRs on the RISE collaboration scientific themes, an aspect which is currently lacking – TBD tomorrow