

Hungary

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LHCphenOnet

Outline

- ▶ Role within Phenonet
- ▶ Topics
- ▶ People
- ▶ Publications
- ▶ Plans

Role in Phenonet

Table 1: Recruitment Gantt chart

Network Partners	Recruited Researcher	12	24	36	48
5 - Hungary	ESR5.1				
	ER5				

Table 3: List of milestones

Milestone number	Milestone name	WP	Teams involved	Linked project result
M1.2	Tops + n jets	WP1	1,2,3,4,5,6,7,9,10,11	Perturbative corrections to top-quark production (single-top and pairs) associated with $n=0, \dots, 2$ jets
M3.3	Parton level Monte Carlos	WP3	1,2,3,4,5,6,7,9,10,11	Release of code for experimental use hard parton cross sections of WP1

Table 8: Network wide events

Month	Event	Location	Length (days)	Expected number of participants	Expected non-network attendants
44	Summer School	Debrecen	10	70	20

Topics

WP1, M1.2: Tops and jets

- ▶ success: 7 final states implemented in PowHel (NLO predictions matched with SMC, see my talk on Thursday):

✓ t and $WWbB$

✓ $t + Z$

✓ $t + H/A$

✓ $t + j$

✓ $t + W$

WP3, M3.3: Partonic MC at NNLO

- ▶ in progress: development of a general subtraction scheme for computing NNLO corrections
 - ✓ scheme defined
 - ✓ all subtraction terms are integrated
 - ✓ to be done: partonic MC (with ESR)

People

Roman Derco (ESR)

- ▶ in WP3 M3.3
- ▶ MSc in Prague
- ▶ New doctoral student
- ▶ Partonic MC at NNLO
- ▶ First: 3 months of internship at Wolfram starting next week



Maria Vittoria Garzelli (postdoc)

- ▶ in WP1 M1.2
- ▶ now in Nova Gorica
- ▶ $t\bar{t}$ hadroproduction in association with bosons
- ▶ 6 publications within LHCPhenonet



Adam Kardos (PhD student)

- ▶ in WP1 M1.2
- ▶ defend his theses in November
- ▶ $t\bar{t}$ hadroproduction in association with bosons
- ▶ 10 publications within LHCPhenonet
- ▶ move to Milan in December (ESR)



Damiano Tommasini (ESR)

- ▶ in WP3 M3.3
- ▶ moved from Firenze (Higgs-production at NNLO)
- ▶ was an ESR in Zürich
- ▶ partonic MC at NNLO



Publications

1. [t tbar W and t tbar Z Hadroproduction at NLO accuracy in QCD with Parton Shower and Hadronization effects.](#) **[arXiv:1208.2665]**
2. [Handbook of LHC Higgs Cross Sections: 2. Differential Distributions.](#) CERN-2012-002 **[arXiv:1201.3084]**
3. [Z0 - boson production in association with a top anti-top pair at NLO accuracy with parton shower effects.](#)
Phys.Rev. D85 (2012) 074022 [arXiv:1111.1444]
4. [NLO Event Samples for the LHC.](#)
PoS EPS-HEP2011 (2011) 282 [arXiv:1111.1446]
5. [Top quark pair production in association with a Z-boson at NLO accuracy.](#)
Phys.Rev. D85 (2012) 054015 [arXiv:1111.0610]
6. [Helac-nlo.](#) **[arXiv:1110.1499]**
7. [Standard Model Higgs boson production in association with a top anti-top pair at NLO with parton showering.](#)
Europhys.Lett. 96 (2011) 11001 [arXiv:1108.0387]
8. [Top quark pair production in association with a jet with NLO parton showering.](#)
Phys.Lett. B705 (2011) 76-81 [arXiv:1101.2672]
9. [A subtraction scheme for computing QCD jet cross sections at NNLO: integrating the iterated singly-unresolved subtraction terms.](#)
JHEP 1101 (2011) 059 [arXiv:1011.1909]

Plans

- ▶ concentrate mainly on WP3 M3.3
- ▶ hire one ER next year
- ▶ organize a school (jointly with yearly Hungarian Particle Physics school) in about two years