Physics & MC: uncovered topics

A. Guskov

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Access to $g_{1T}^{g}, h_{1T}^{\perp g}, h_{1L}^{\perp g}$

For theorists

Could we access them?

Unpolarized gluons at high x in proton and deuteron

Gluon helicity

Gluon Boer-Mulders function

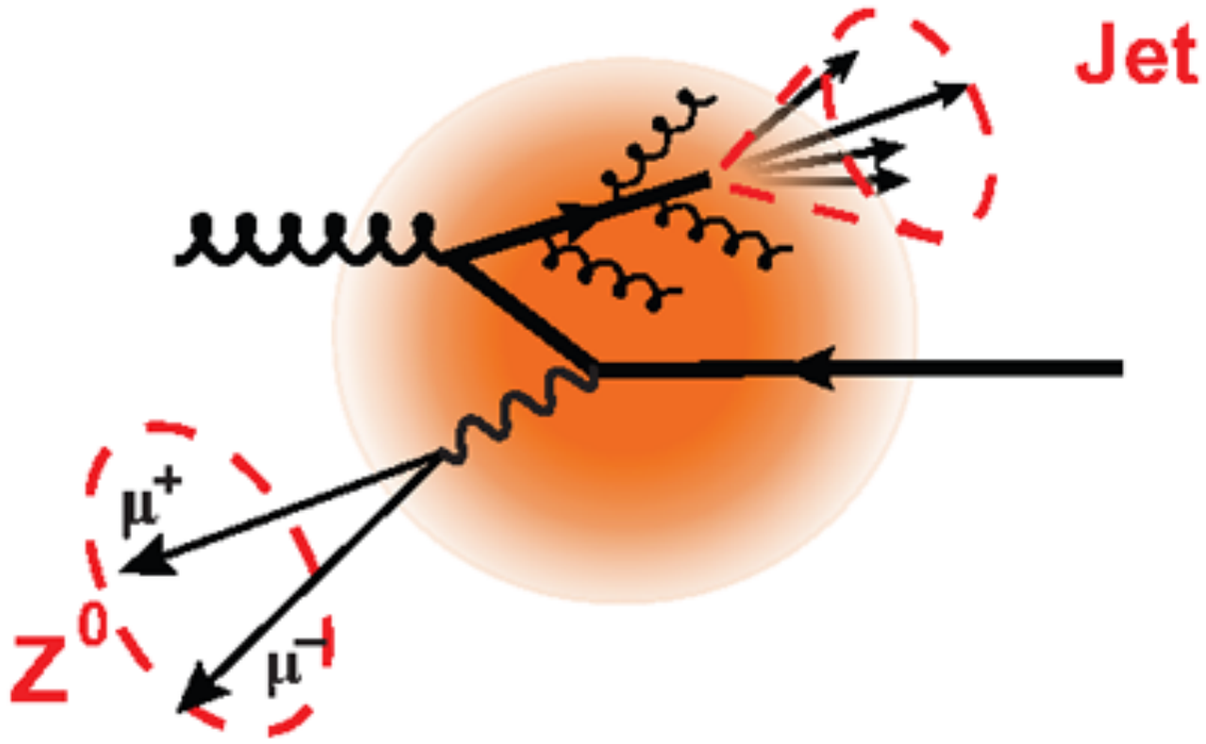
GLUONS	*unpolarized*	*circular*	*linear*
U	f_1^g		$h_1^{\perp g}$
L		g_{1L}^g	$h_{1L}^{\perp g}$
T	$f_{1T}^{\perp g}$	g_{1T}^g	$h_{1T}^g, h_{1T}^{\perp g}$

Gluon Sivers function

Gluon transversity in deuteron

Jets and leading hadrons

Pythia level, for master students



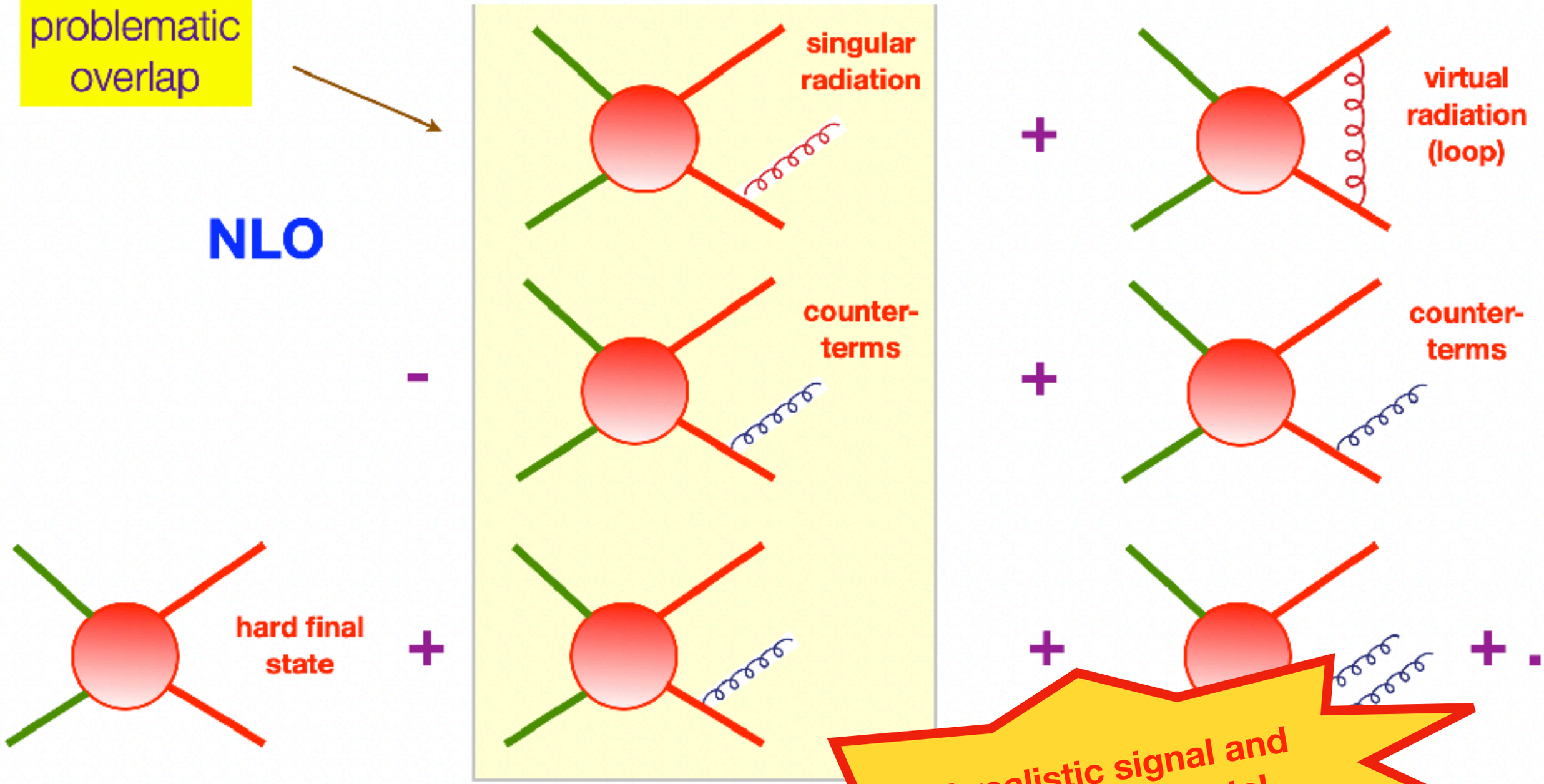
Could we use them to improve our kinematics?

NLO & parton showers

for master or PhD students (theory), generator level

problematic overlap

NLO



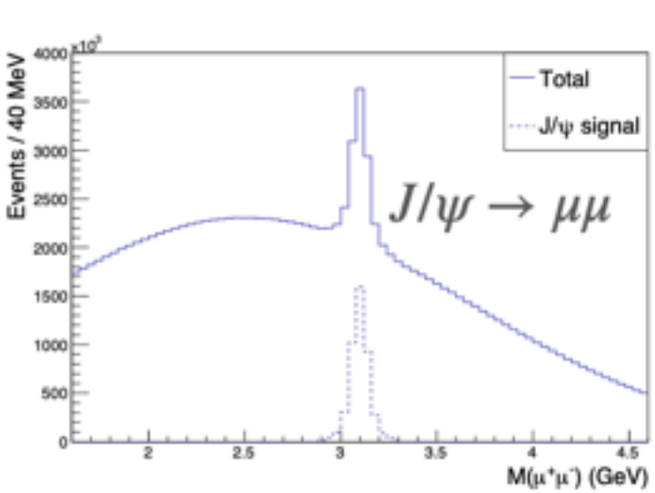
parton shower

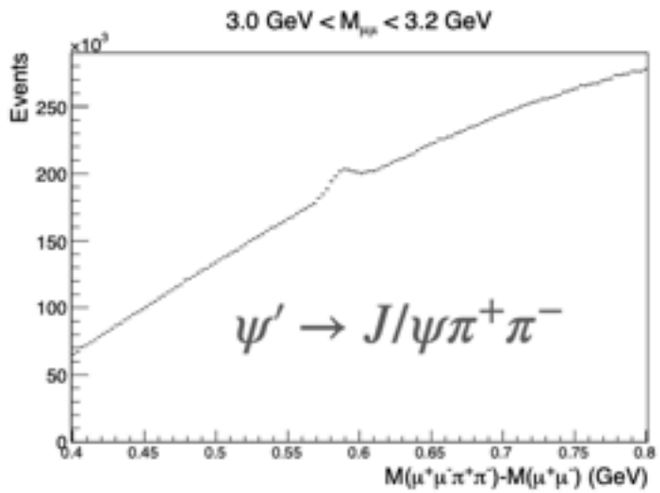
Get realistic signal and background events!

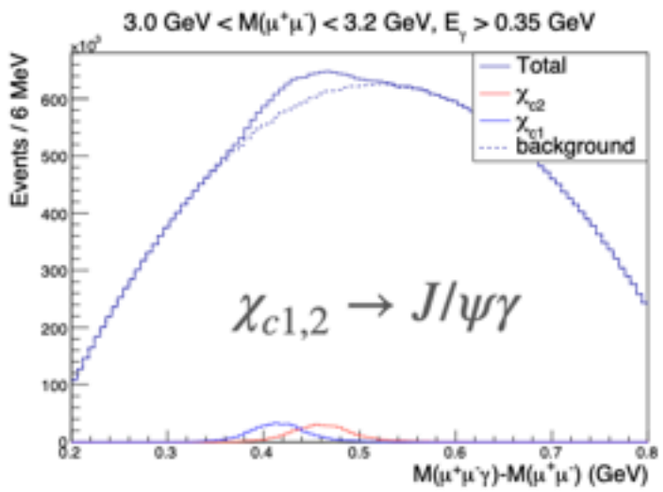
Energy scan for main channels

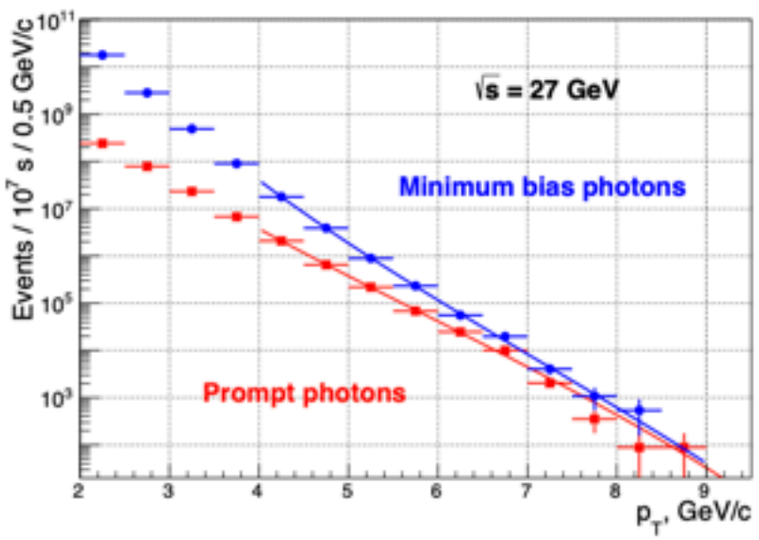
for master or PhD students, SPDroot level

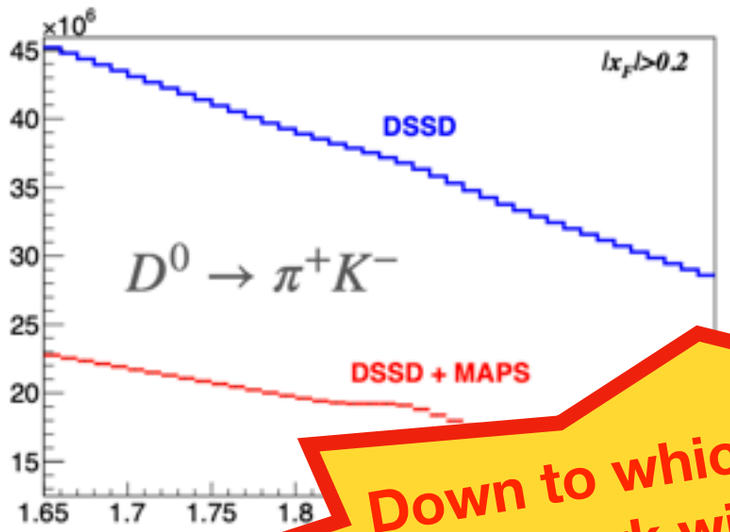
Now our estimations are done for 27 GeV only!











Down to which energy we can work with our main probes?

Open charm with $D^{\pm}$ and D^{*}

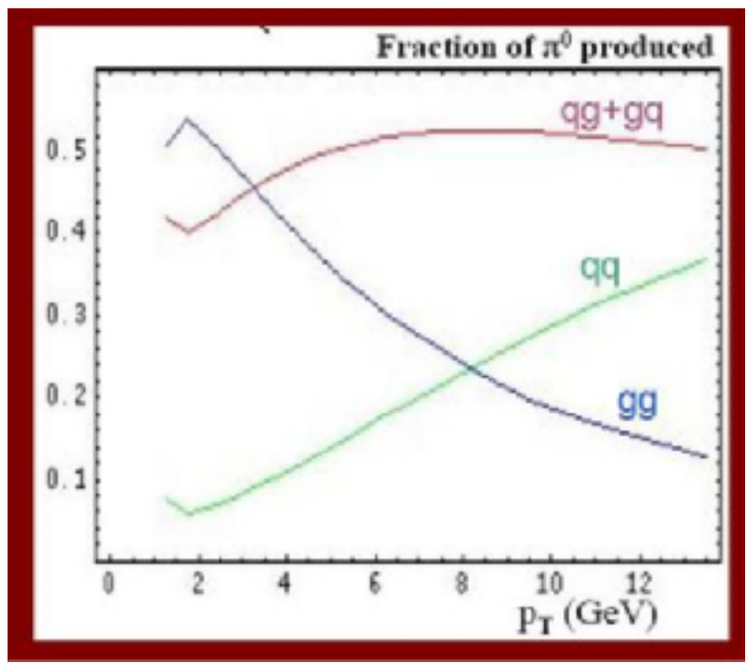
SPDroot level, for PhD students

Physics with $\gamma\gamma$ and $J/\psi\gamma$

generator & SPDroot level, for PhD students

π^0 production in different hard processes

generator & SPDroot level, for PhD students

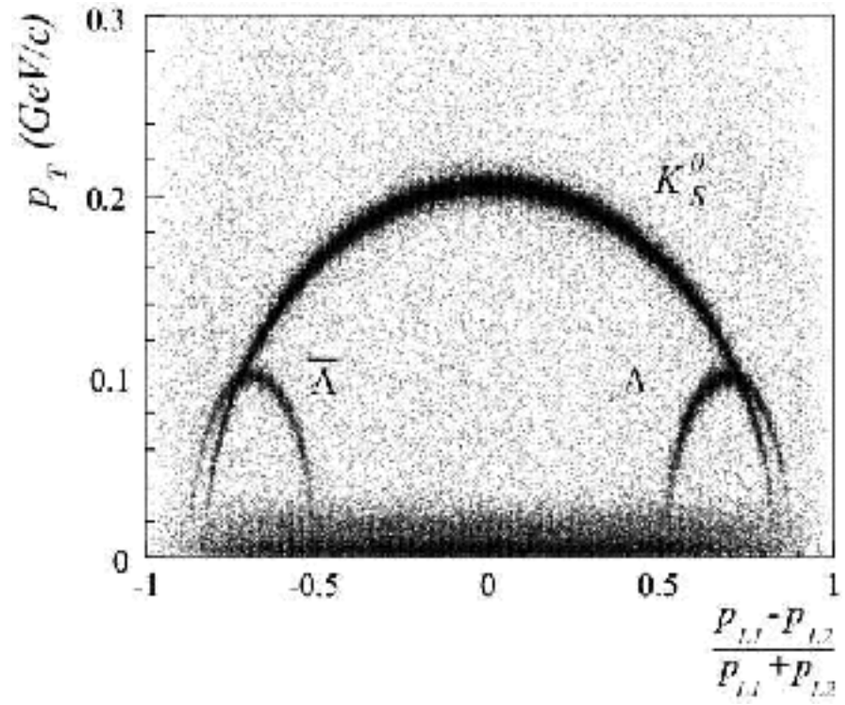


Could we use additional probes in our studies?

Physics with Λ

generator & SPDroot level, for master & PhD students

Kinematics, acceptance, backgrounds

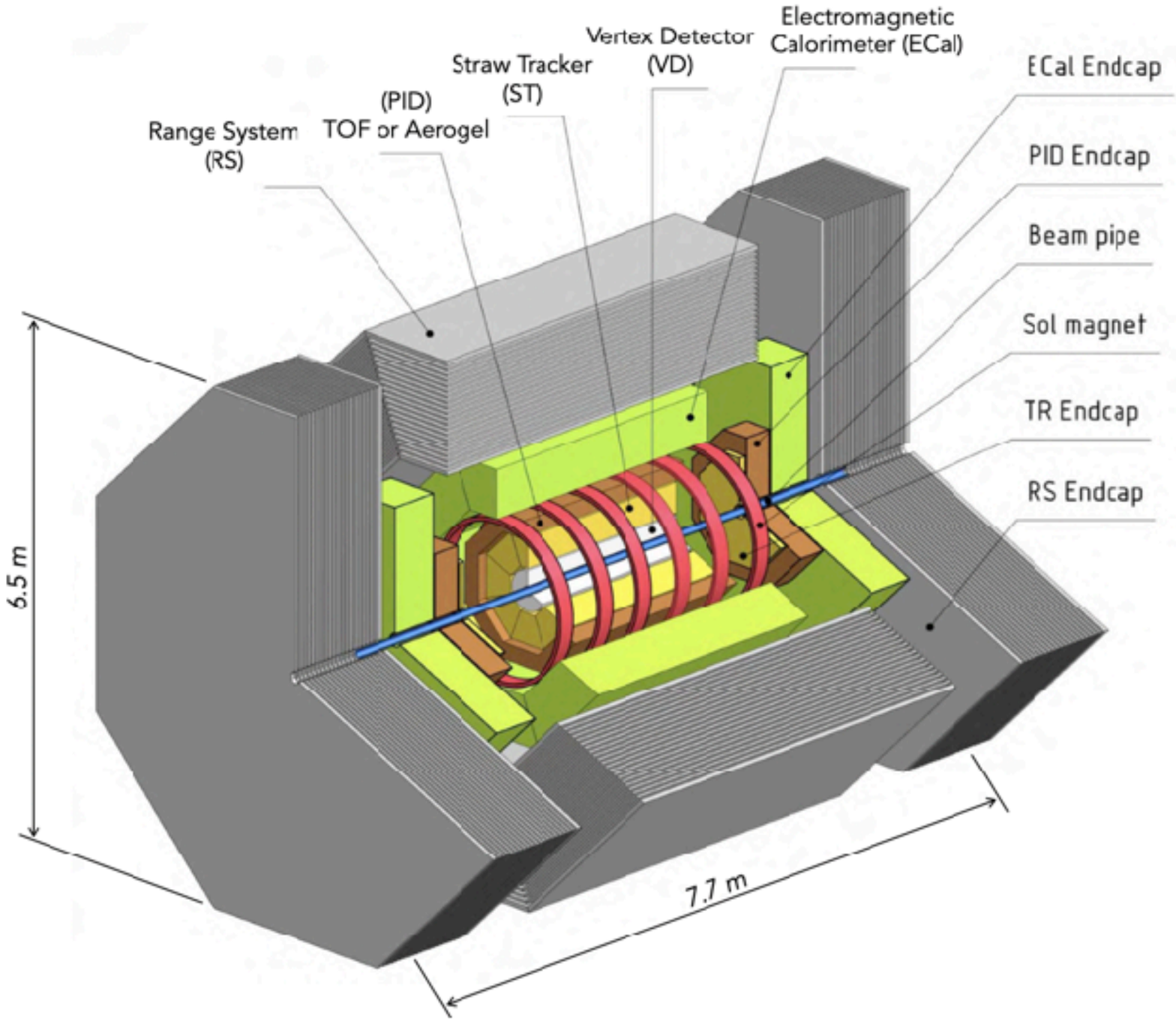


Comparison of pp, dd and pd collisions

generator level, for master students

Setup optimization and tests

for master or PhD students, SPDroot level



Summary

We have so many things to be done that we can easily load with work 10-20 master and PhD students!