BSM/БСМ Summary
LCWS/ЛЦВС '14, Београд

Jürgen R. Reuter, DESY

The BSM Case of the ILC

Three ILC Physics foundations:

- Higgs (precision) measurements
- Top (precision) measurements
- (Direct) BSM searches

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- Dark Matter
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- New symmetries (global and/or local)
- New substructure
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TASK: connect the two pictures and the equal importance of both

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C) Charm/tau discovery: 1974/76
SLAC: **SM flavor structure**
(e^-e^+ beams)

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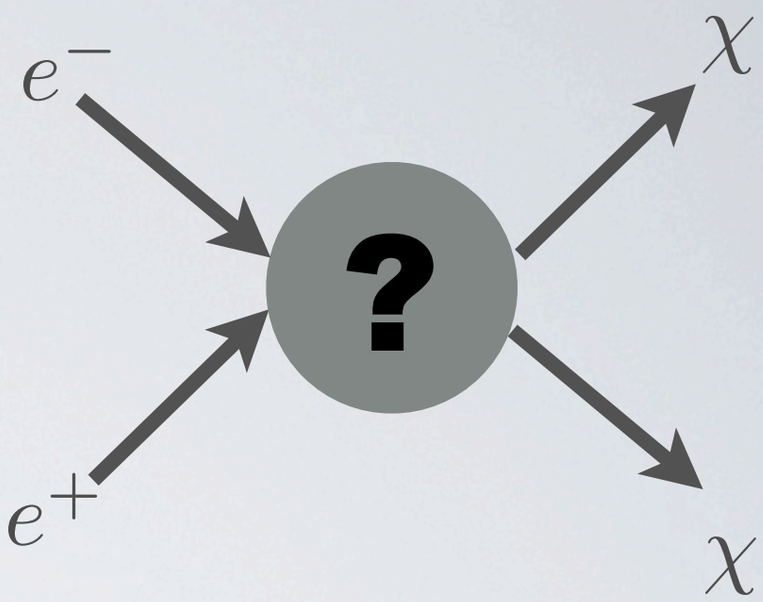

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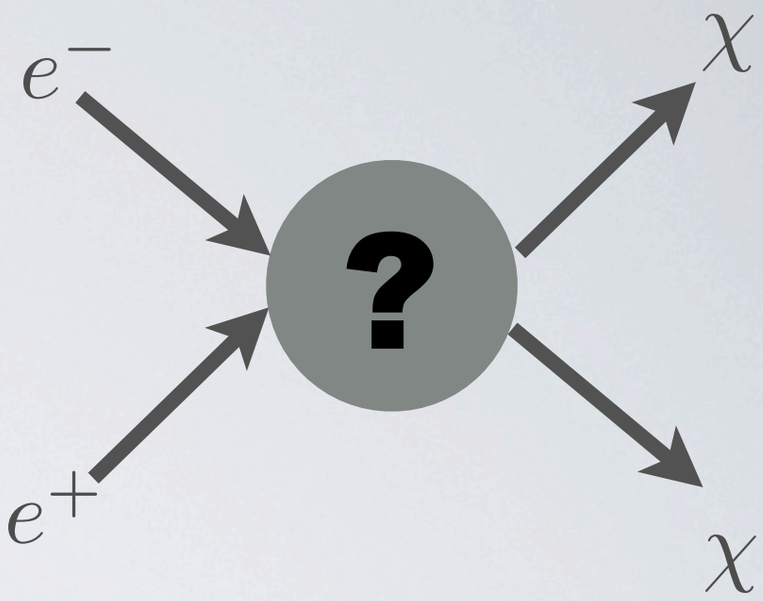

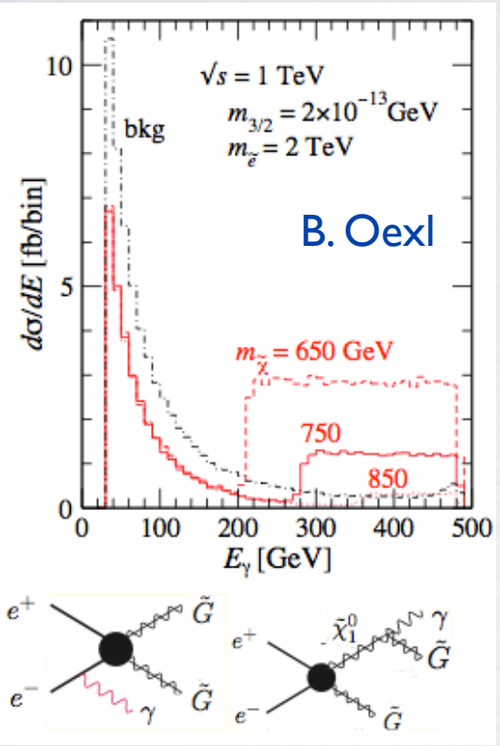

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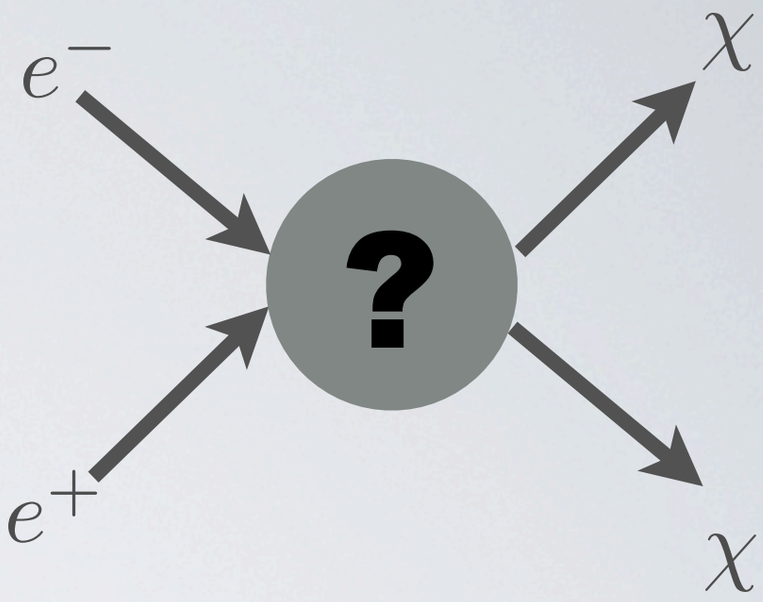

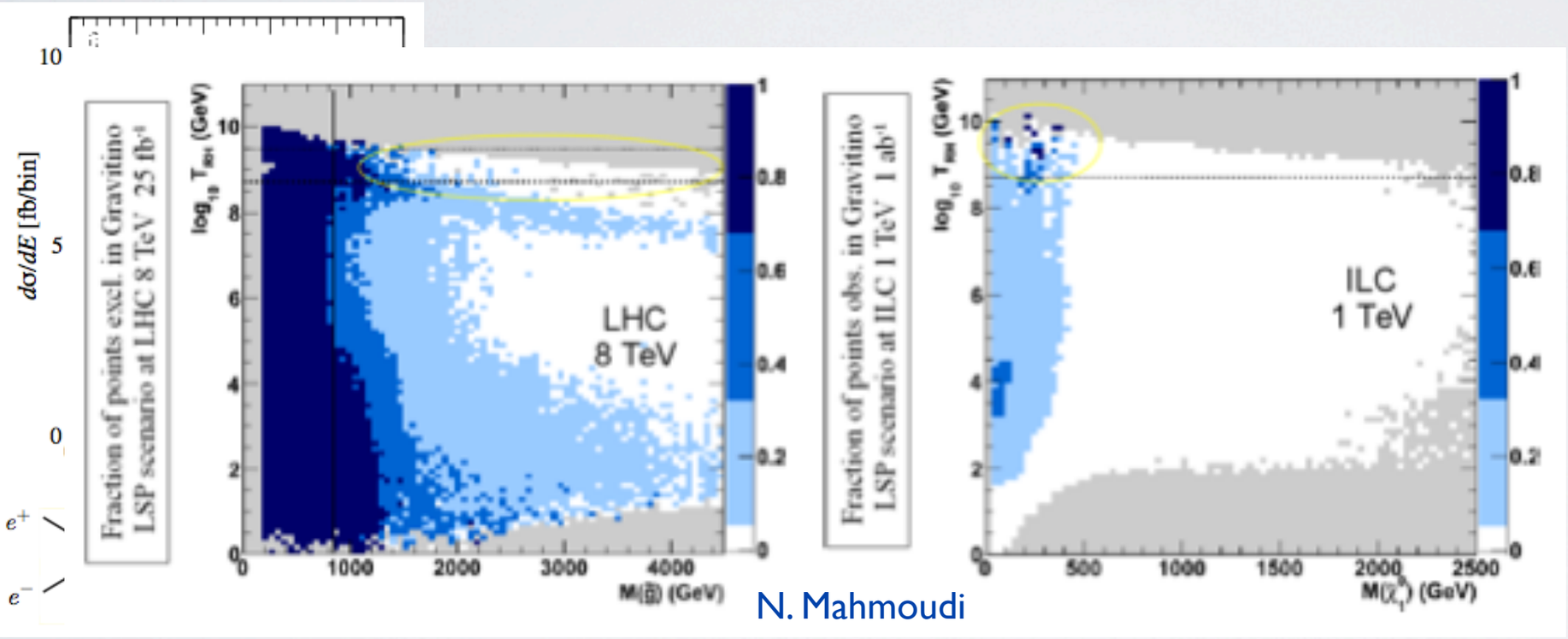

N. Mahmoudi

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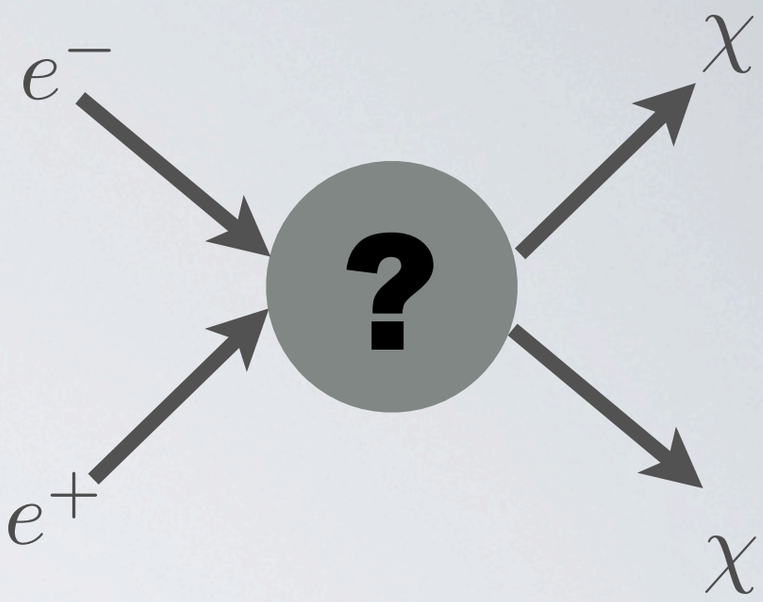

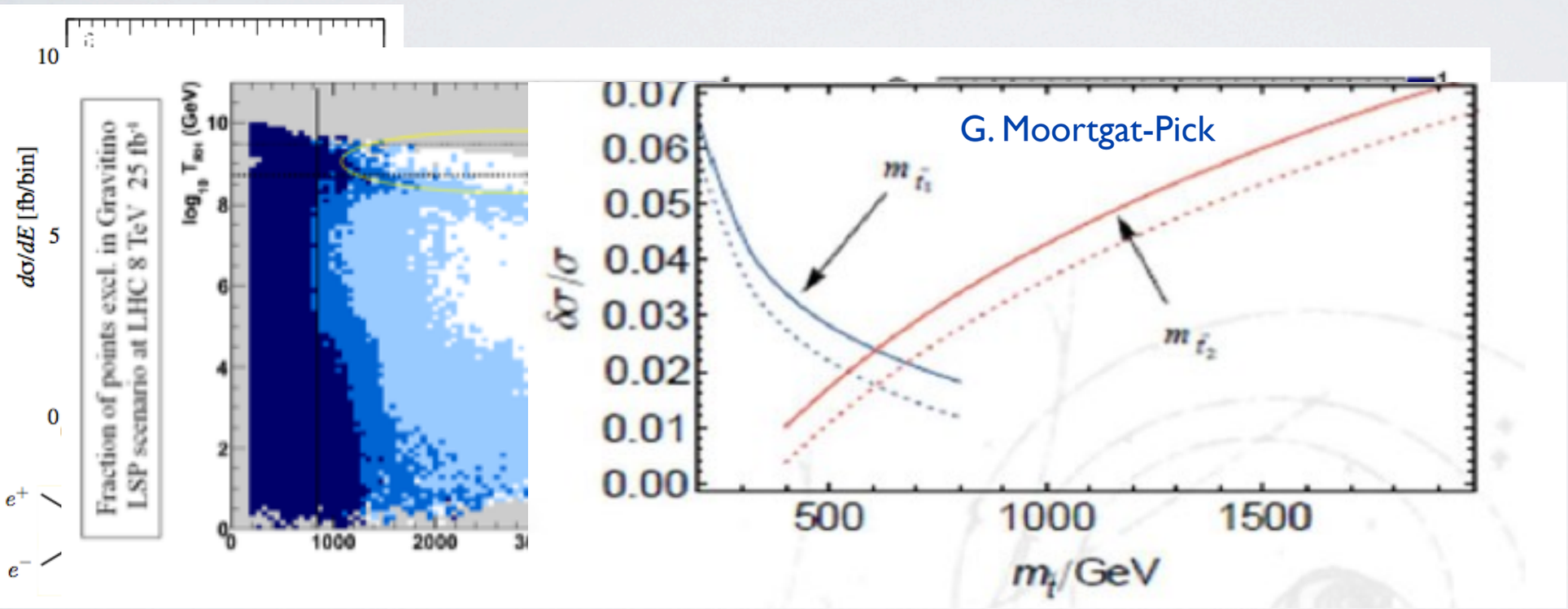

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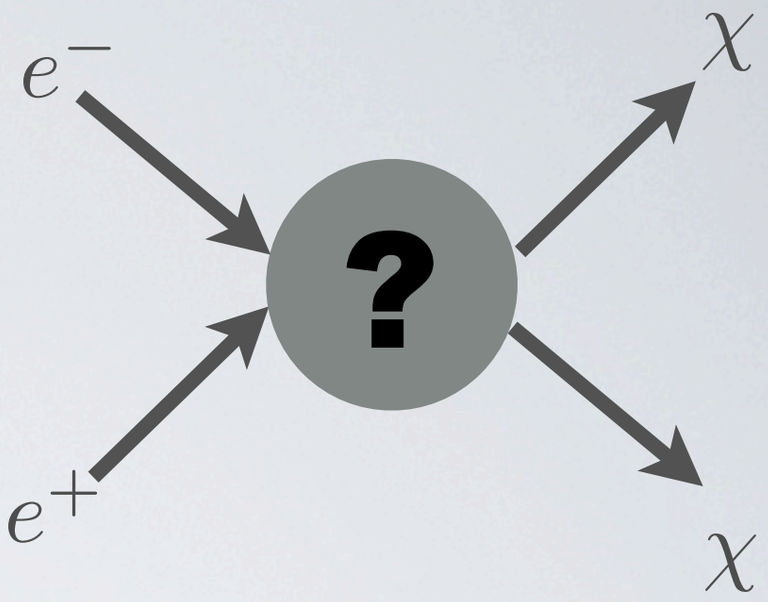
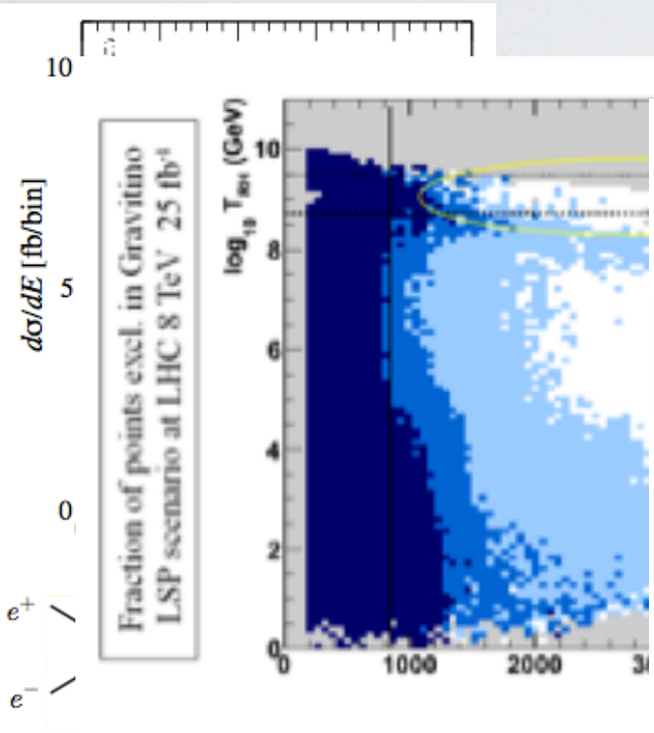
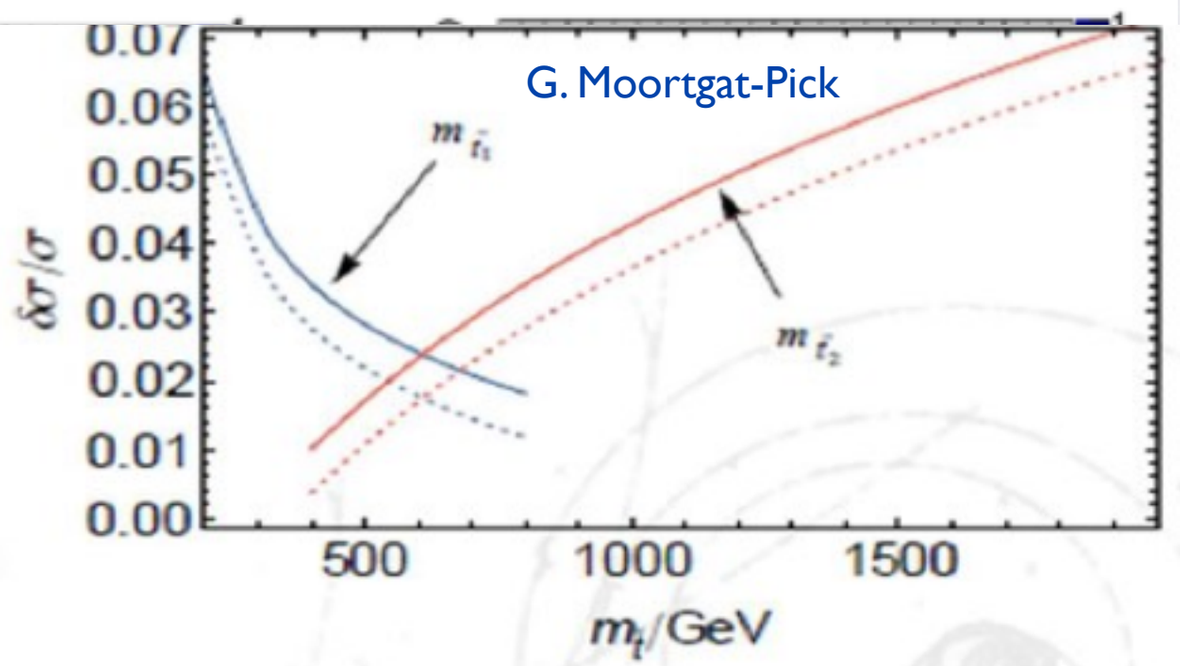
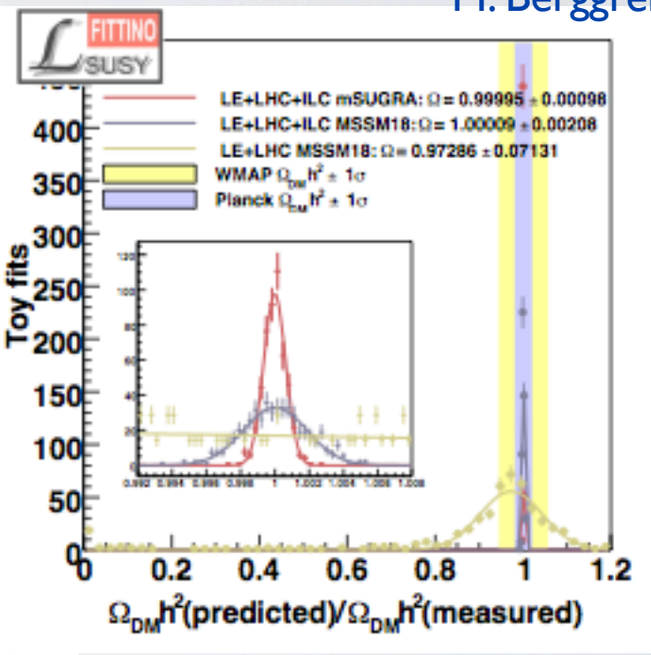






M. Berggren



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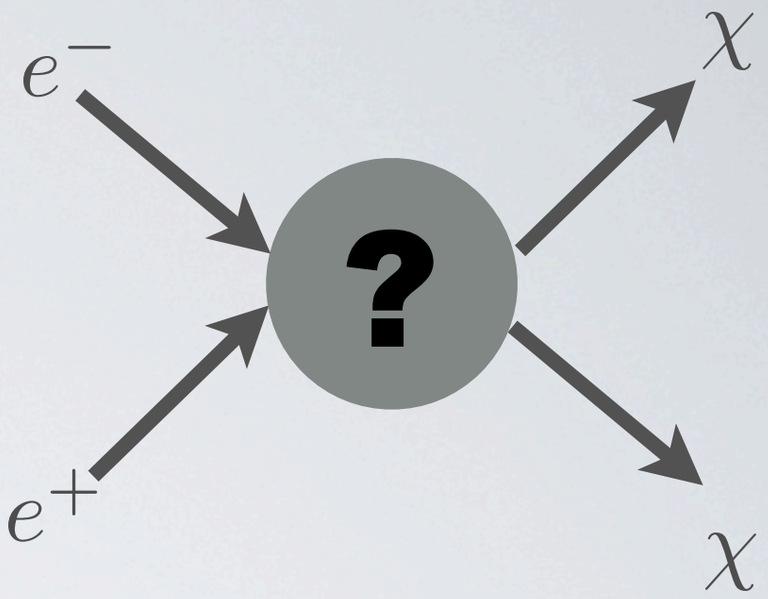

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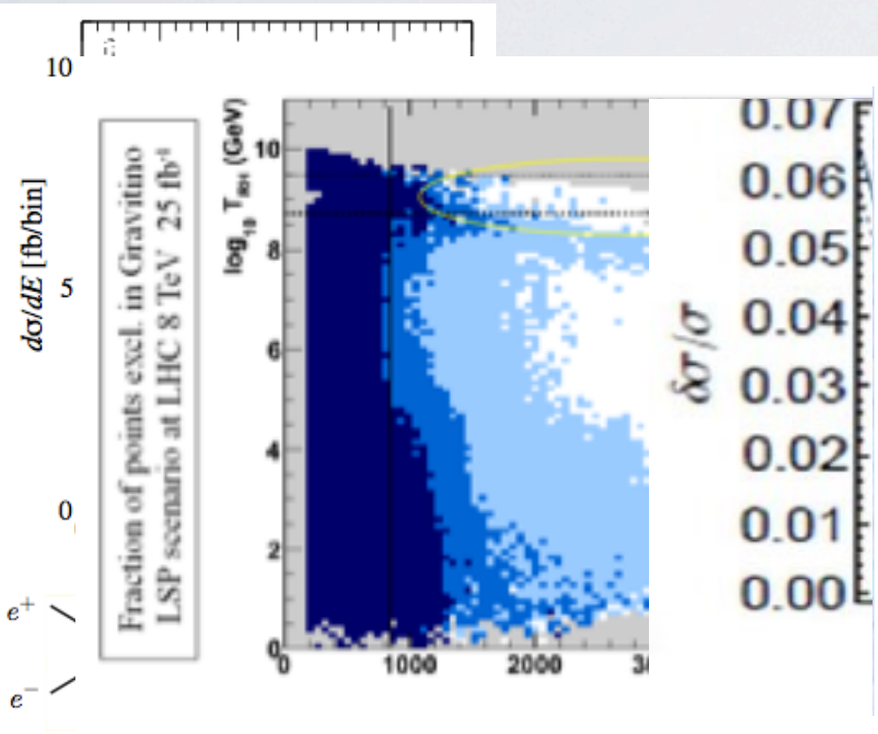

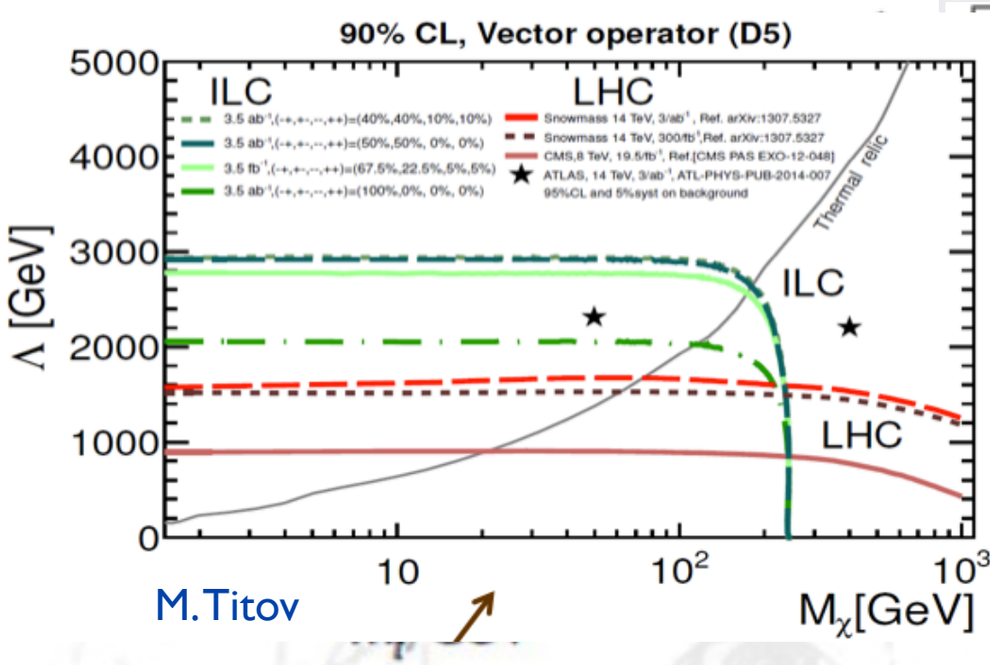

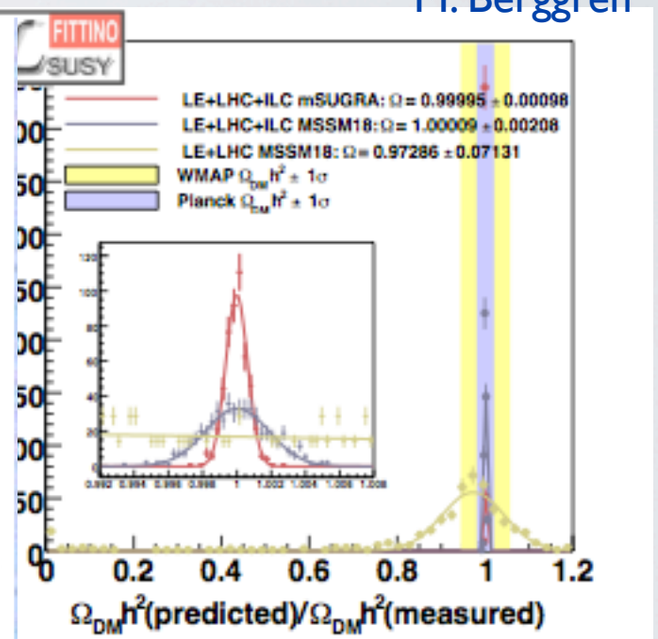

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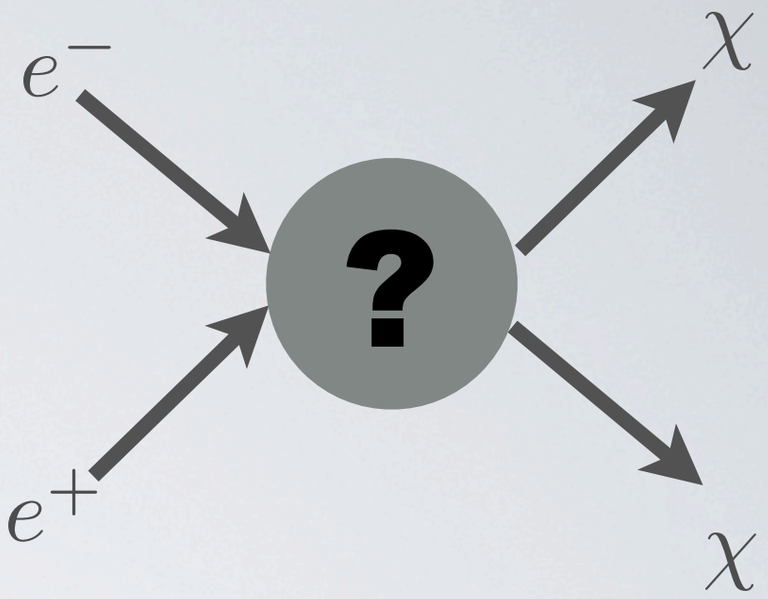
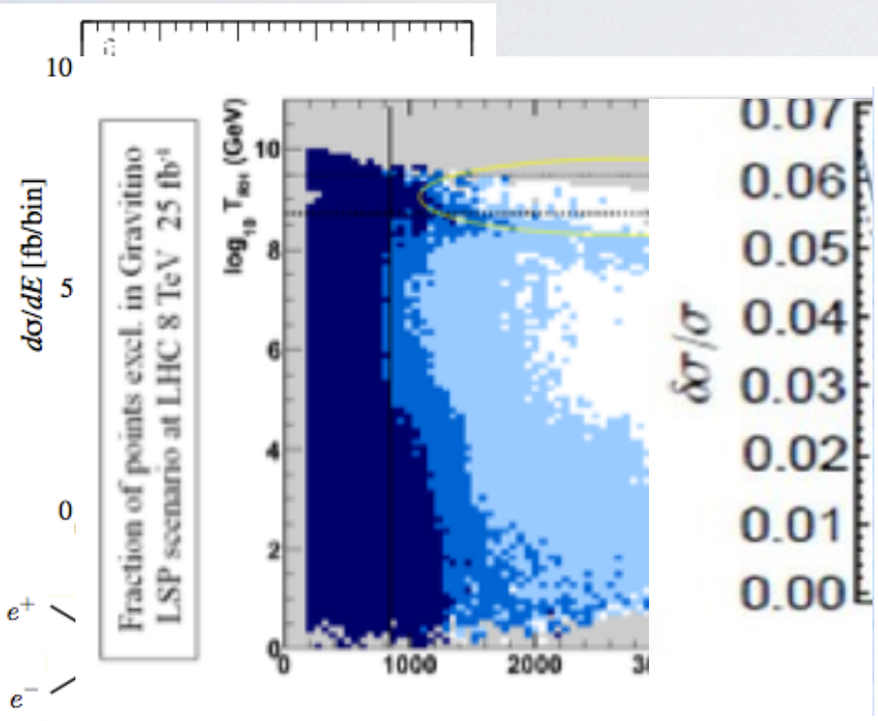
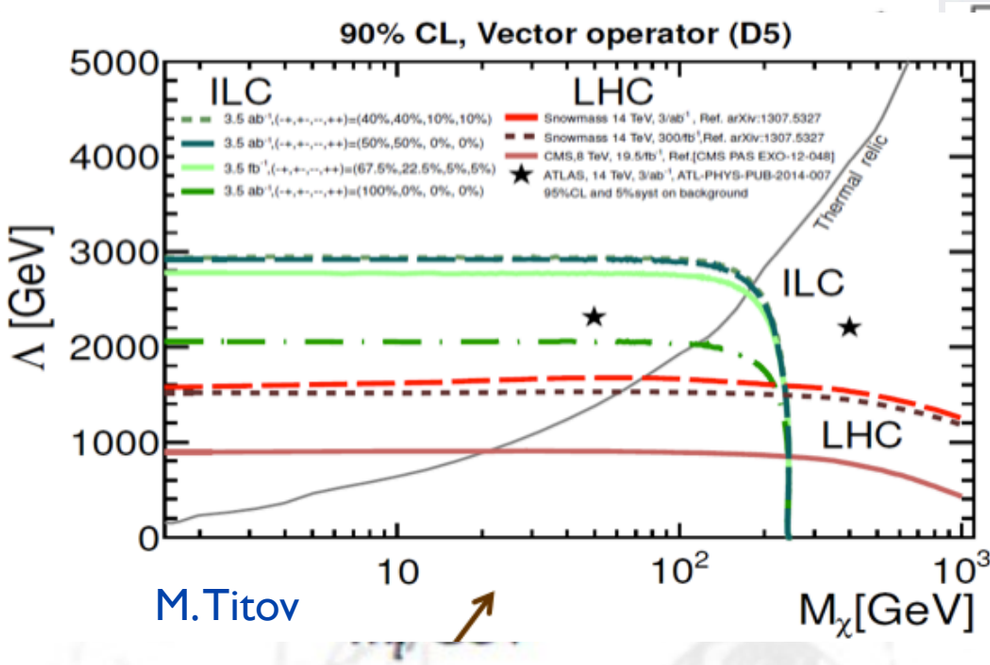
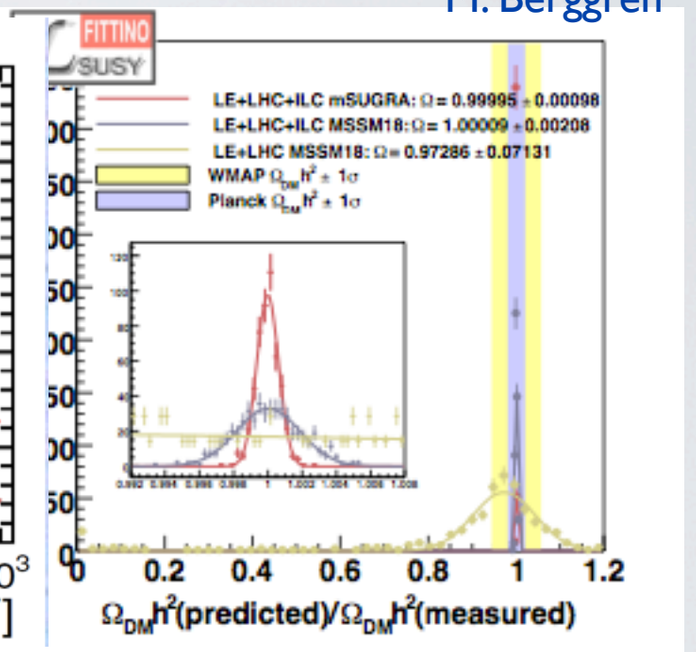








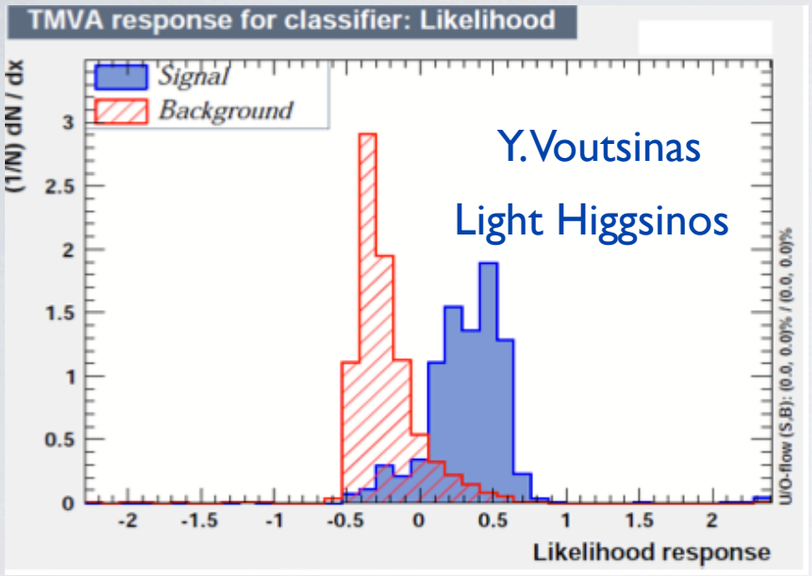
LHC accesses higher masses, ILC lower cross sections (few caveats)

TASK: comparison of mono-γ ILC (feasible > 500 GeV?) vs. mono-X LHC

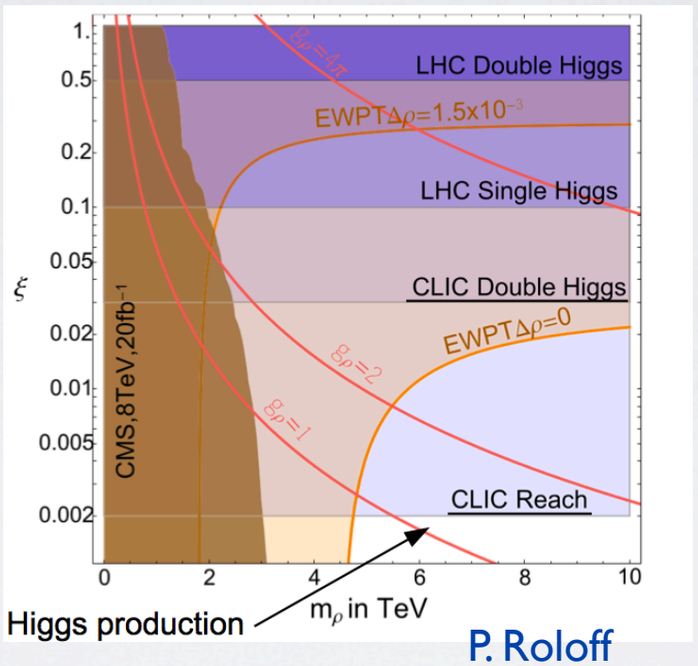
Better connect LHC discovery potential with ILC model discrimination

SUSY vs. Xdim. vs. Compositeness vs. New Forces/ GUTS

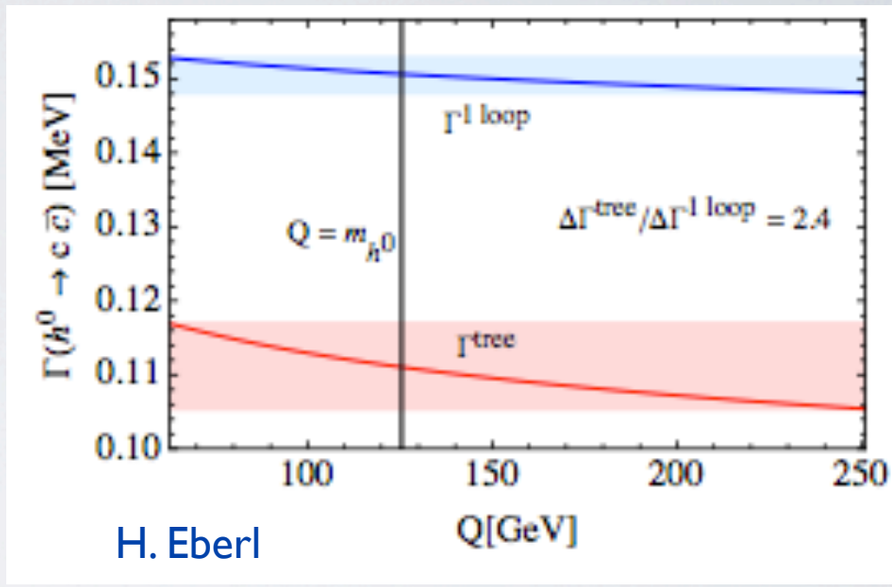
- Questions: What will be ILC discovery potential after LHC Run II ?
- What are unique measurements and opportunities at the ILC ?
- Discovery potential has sharpened: TESLA TDR → ILC TDR / Snowmass → now



J. Sato: Connection SUSY spectrum w/ BBN



P. Roloff



H. Eberl

- More theory input needed: EW corrections, tools, ideas
- Fit indirect sensitivity into the big picture
- Demand: Rôle of low-μ SUSY scenario after LHC Run I/II: sharpen ILC picture
- Demand: Status of Extra Dimensions after LHC Run I/II, connection to ILC (also DM)
- Demand: Update of Unification Plots from TESLA times

Electroweak and Higgs measurements & theory

Close connection and many overlaps: Higgs/EW session and BSM session

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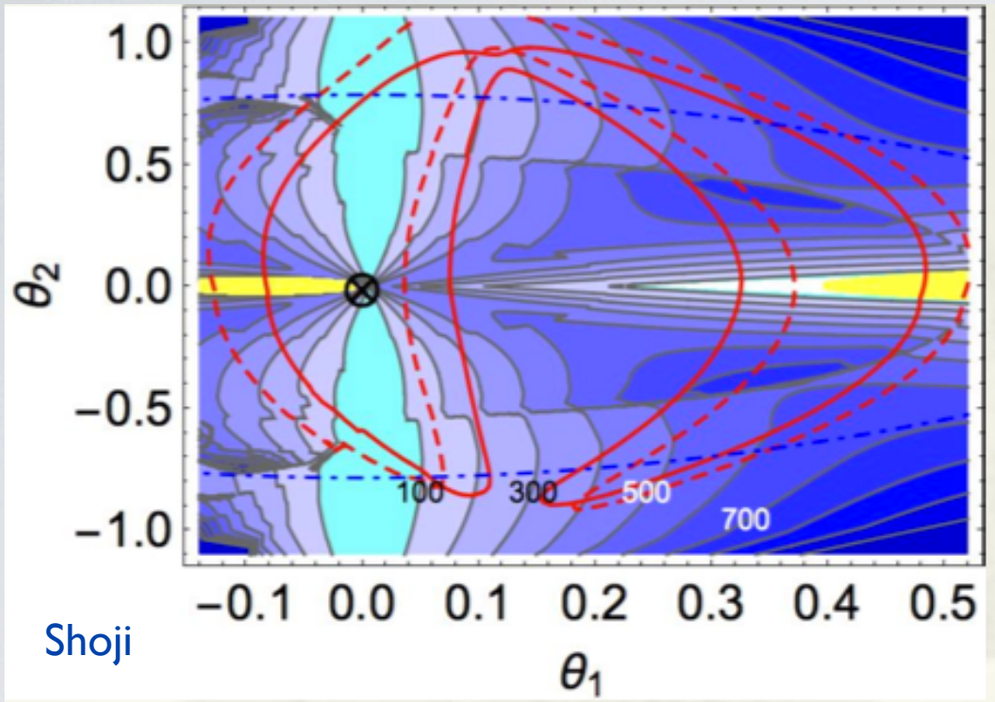

Shoji

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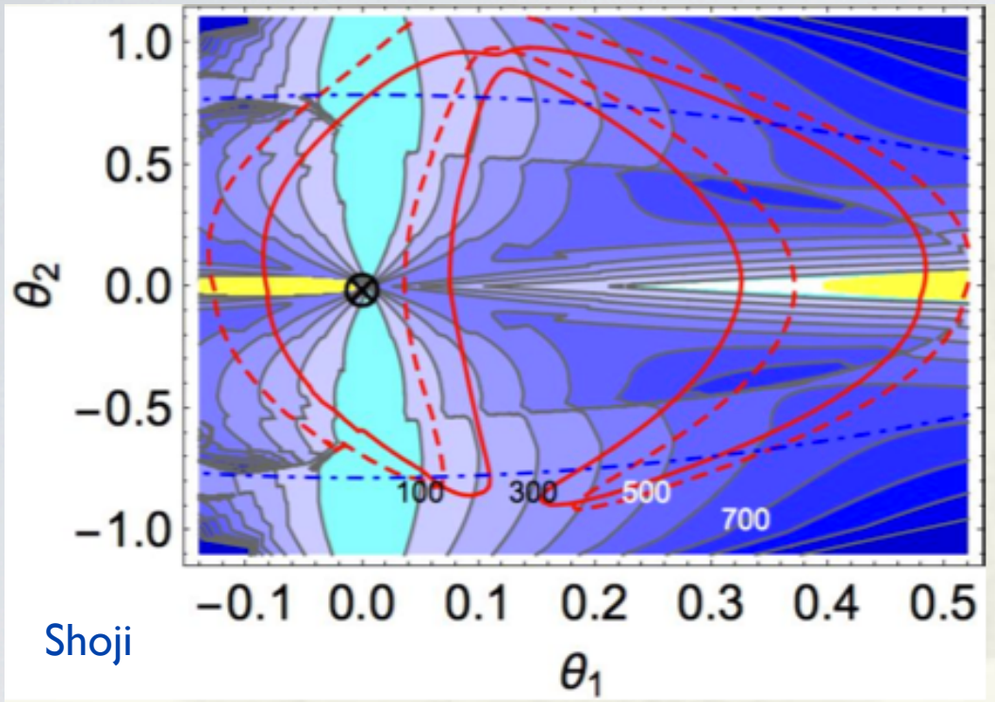

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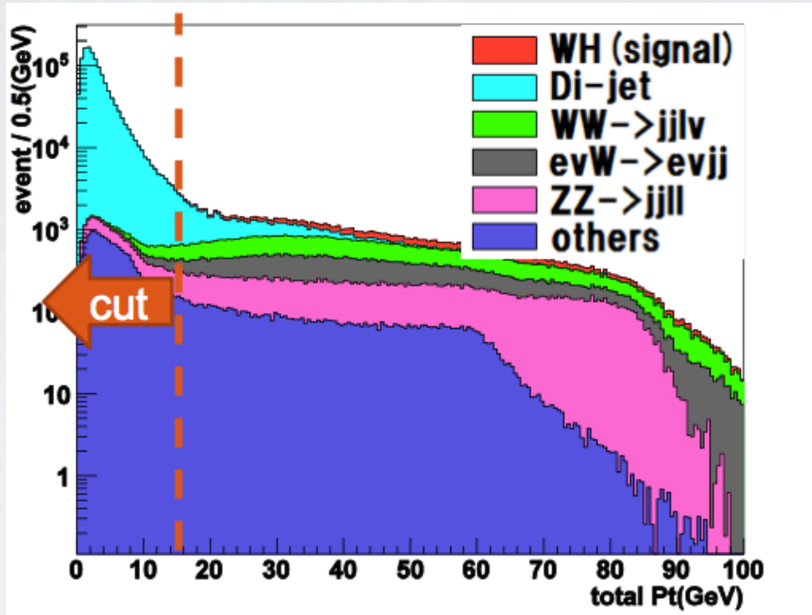

Shinzaki

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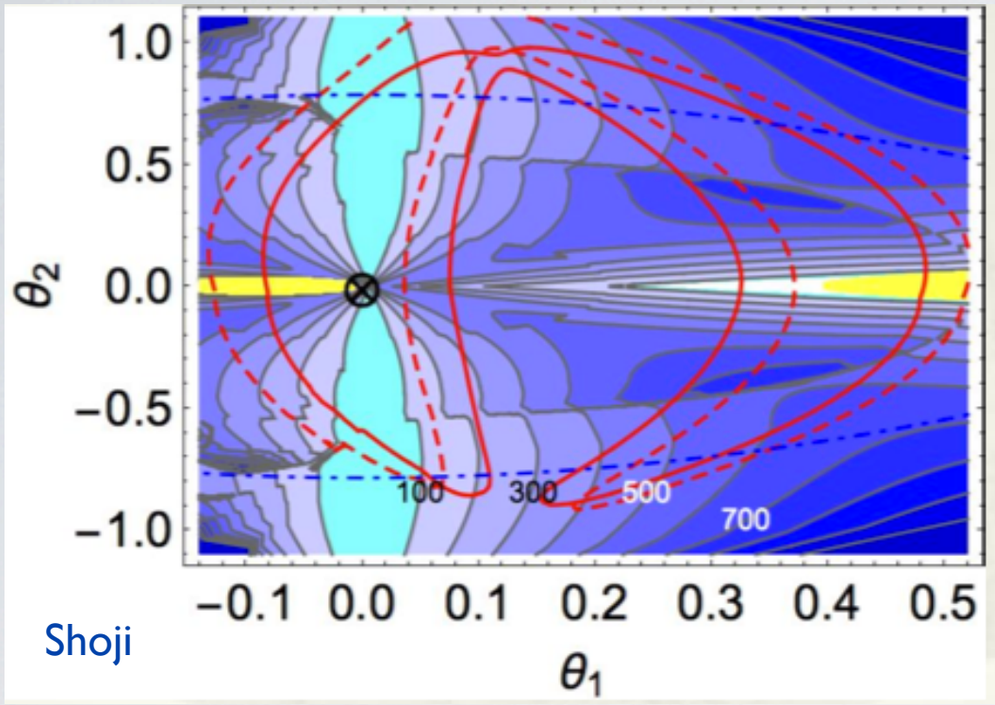

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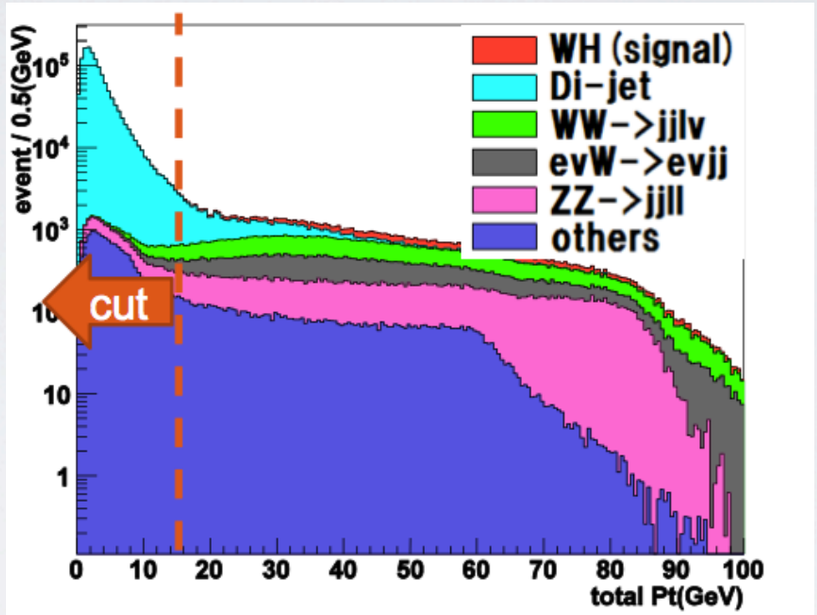

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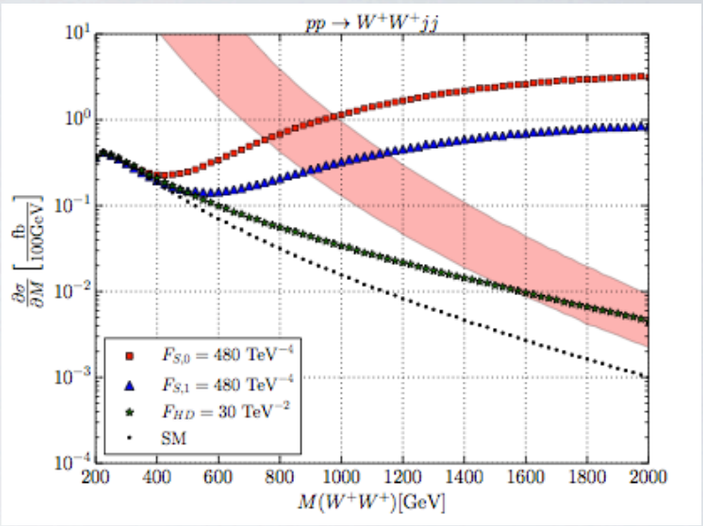

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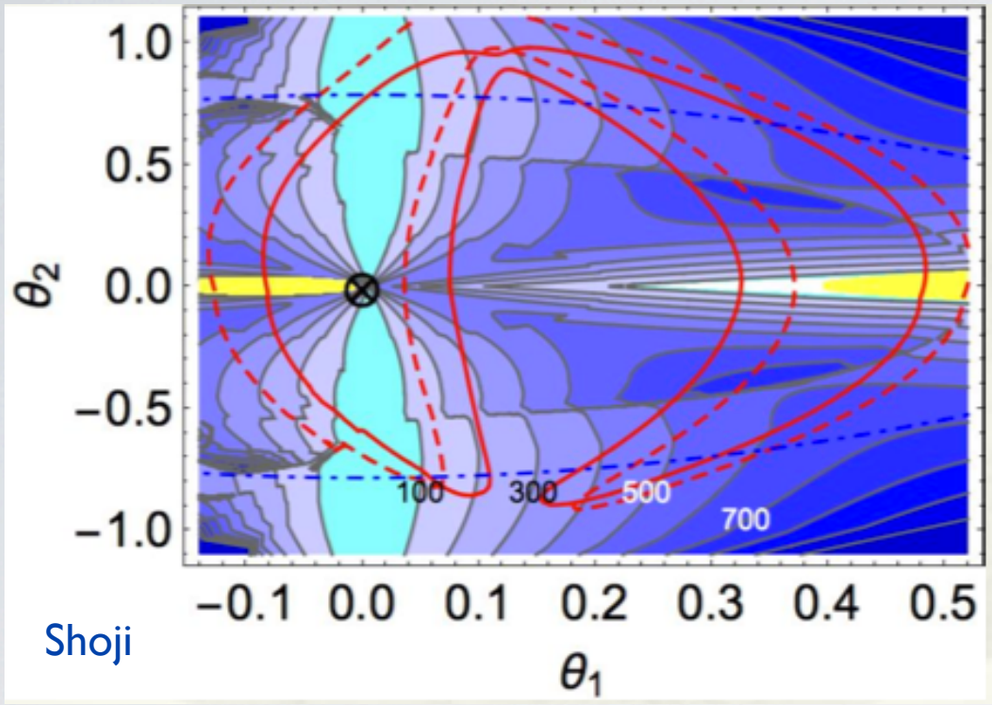

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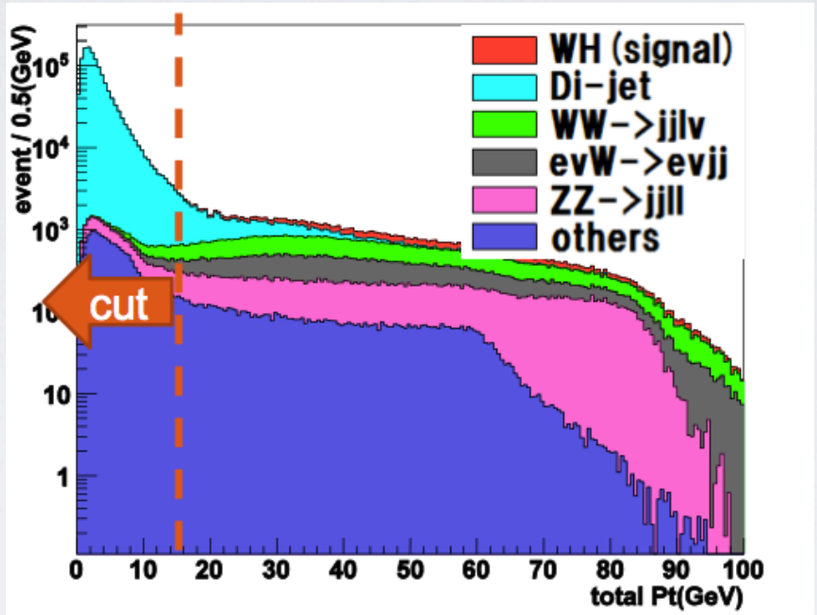

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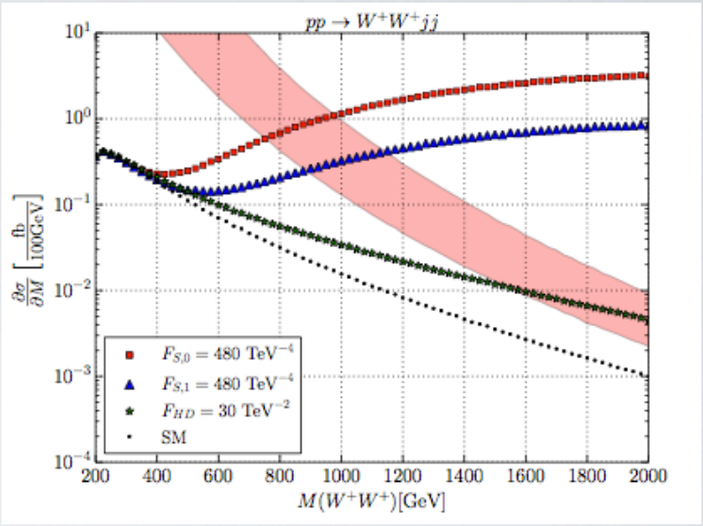

JRR

- BSM-Higgs connection is *sine qua non* : Justification for precision Higgs measurements
- More Theory input needed: radiative corrections, model interplay, ideas !
- Demand: Studies of Vector Boson Scattering: 500 GeV, 550 GeV, 1 TeV, 1.4 TeV, 3 TeV
- Demand: Studies of Triboson production (Comparison to LHC)
- Demand: Studies of [light] pseudoscalar states
- Demand: Studies of connection between charged Higgs and CP violation
- Theory input needed (I know, again)

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Хвала for the great time in Белград !!!