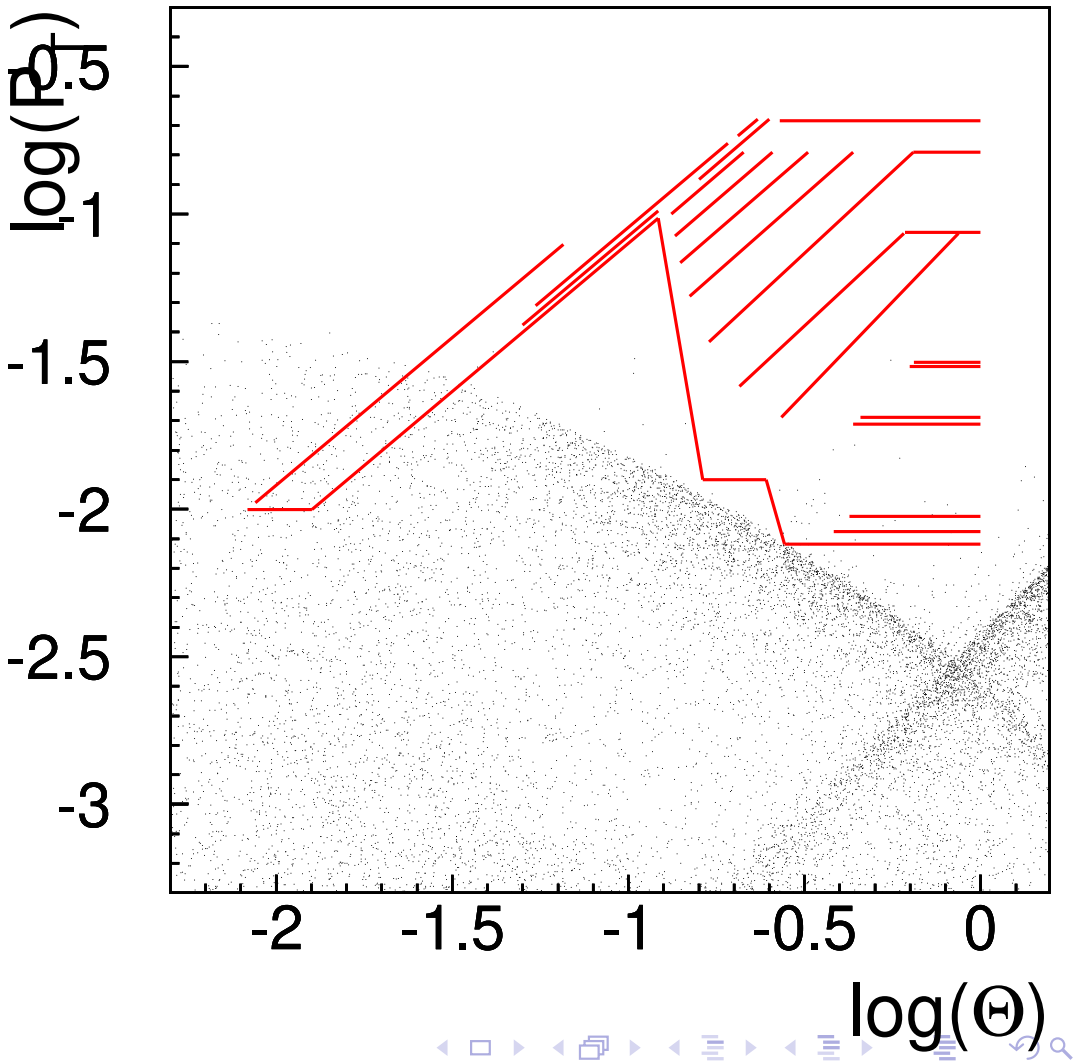
Pairs in HALHF with asymmetric E and asymmetric bunch-charge, $\sigma_z = 75\mu$

- Lumi: 0.83. 62k pairs, w/ 706 TeV
- Power: ILC$\times$1.25
- Backward
- Forward



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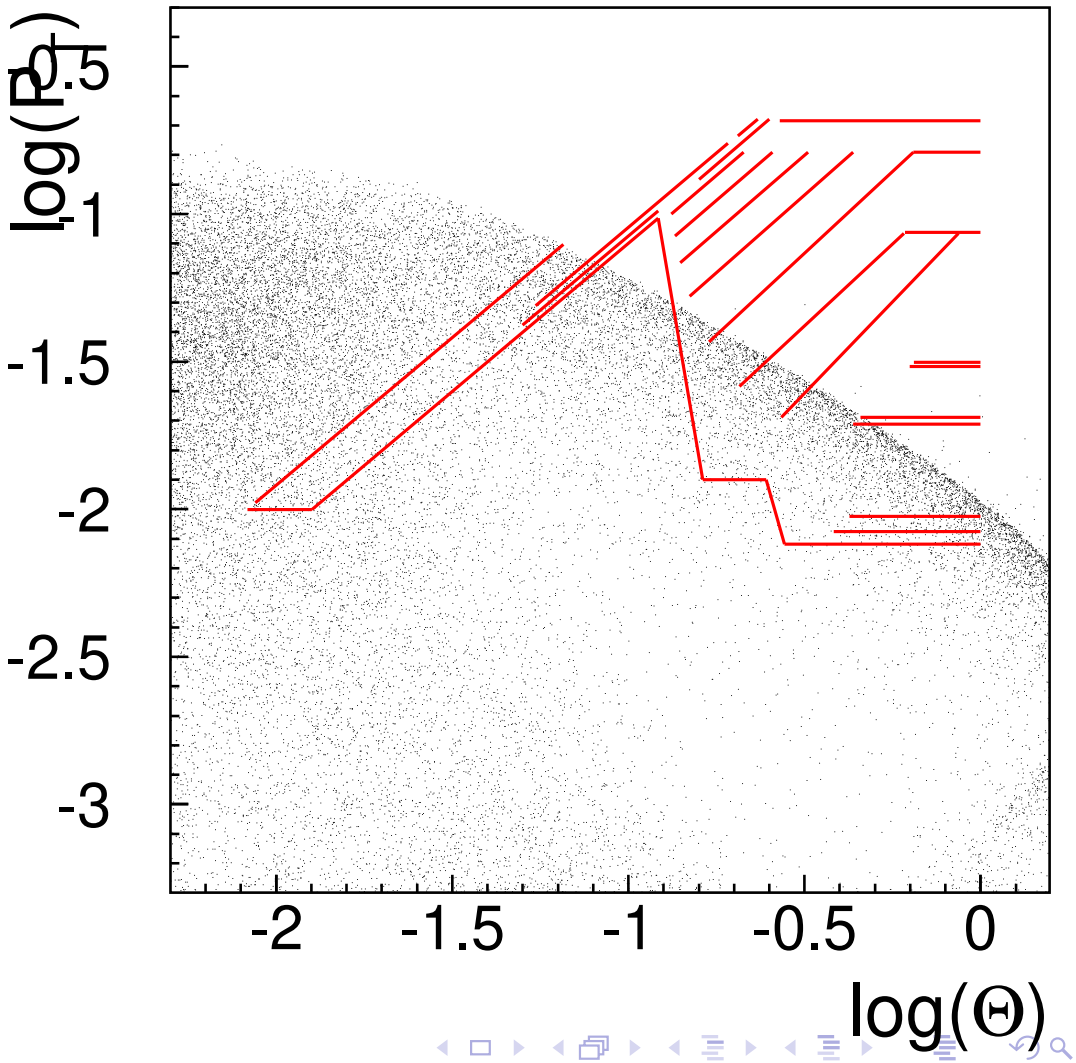
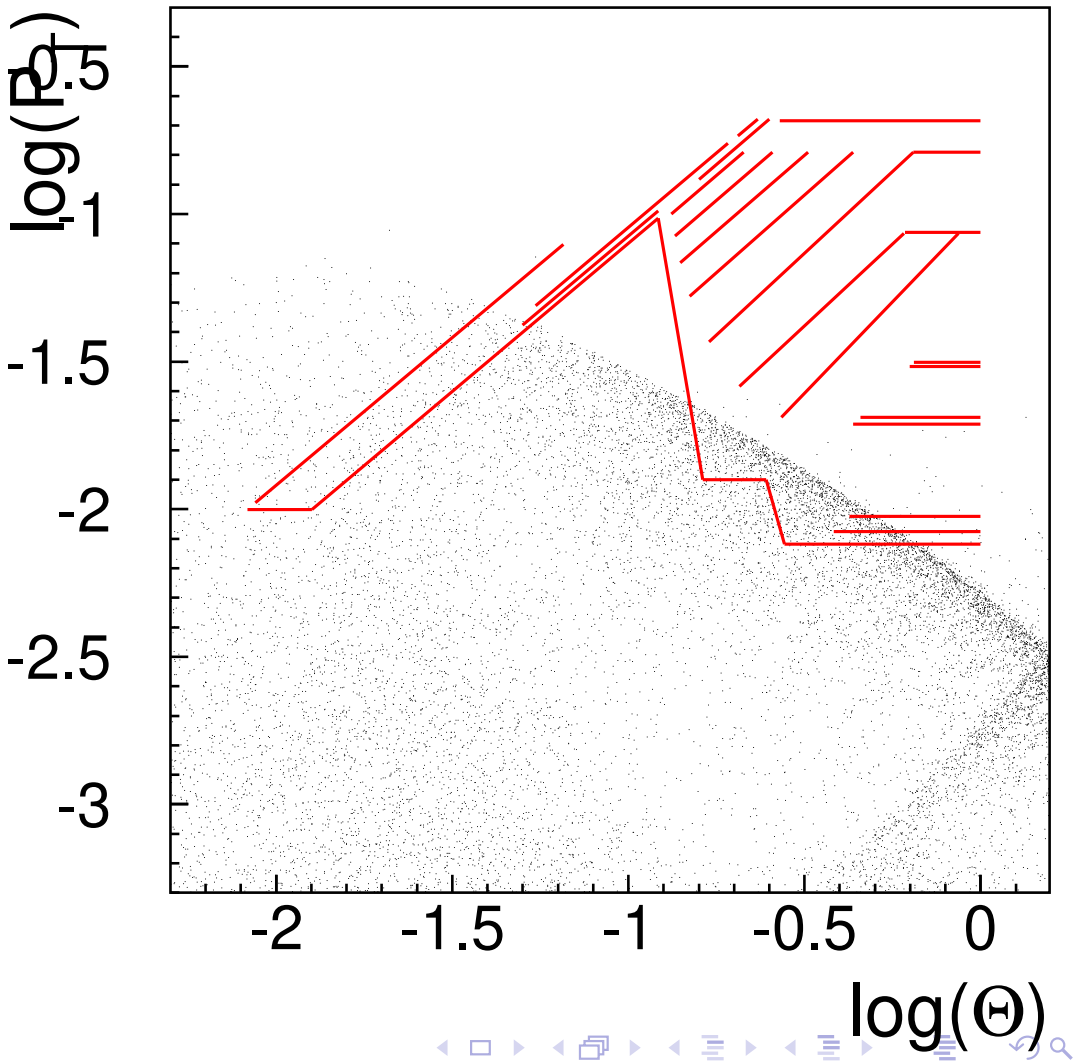


Pairs in HALHF with asymmetric E and symmetric bunch-charge, $\sigma_z = 75\mu$

- Lumi: 0.80. 52k pairs, w/ 341 TeV
- Power: ILC$\times$2.13
- Backward
- Forward



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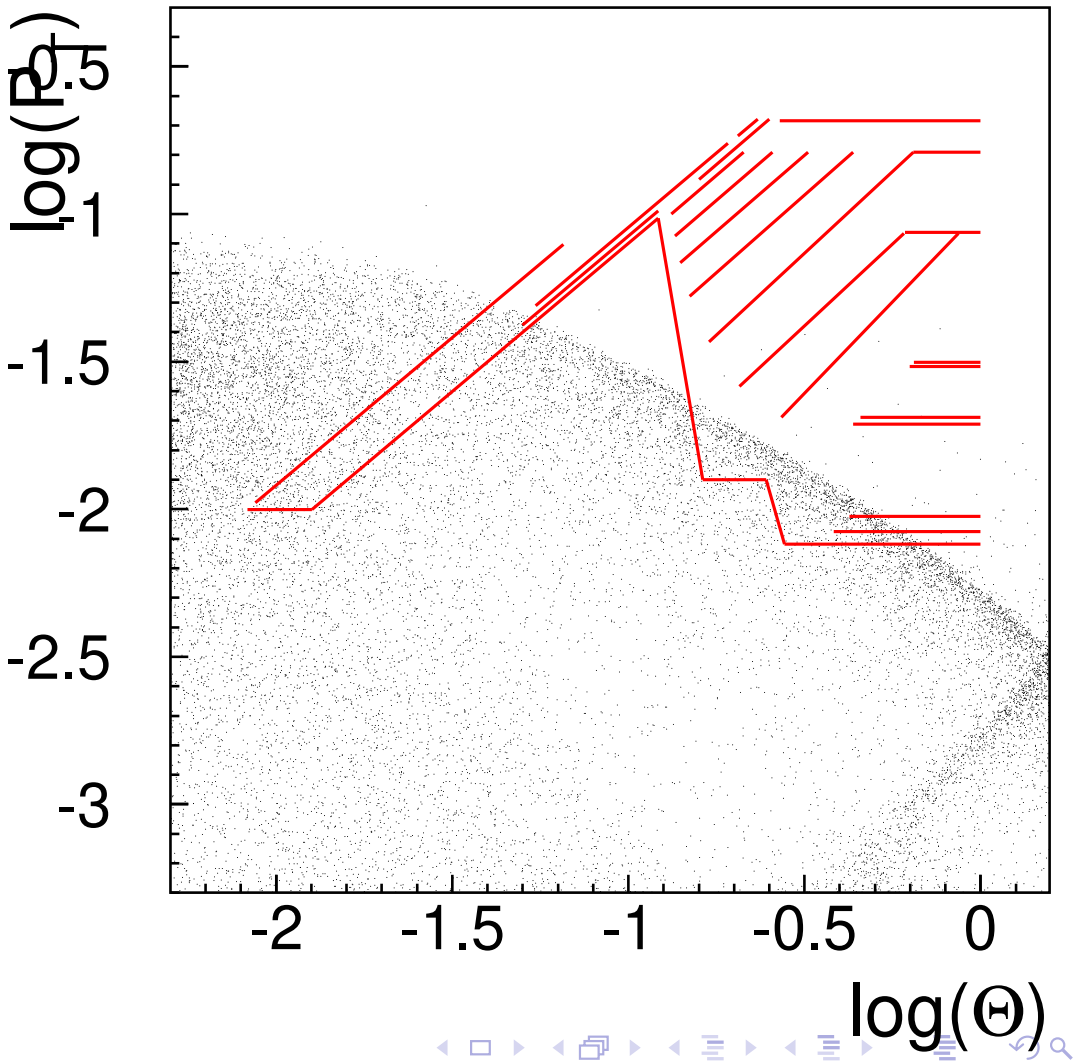
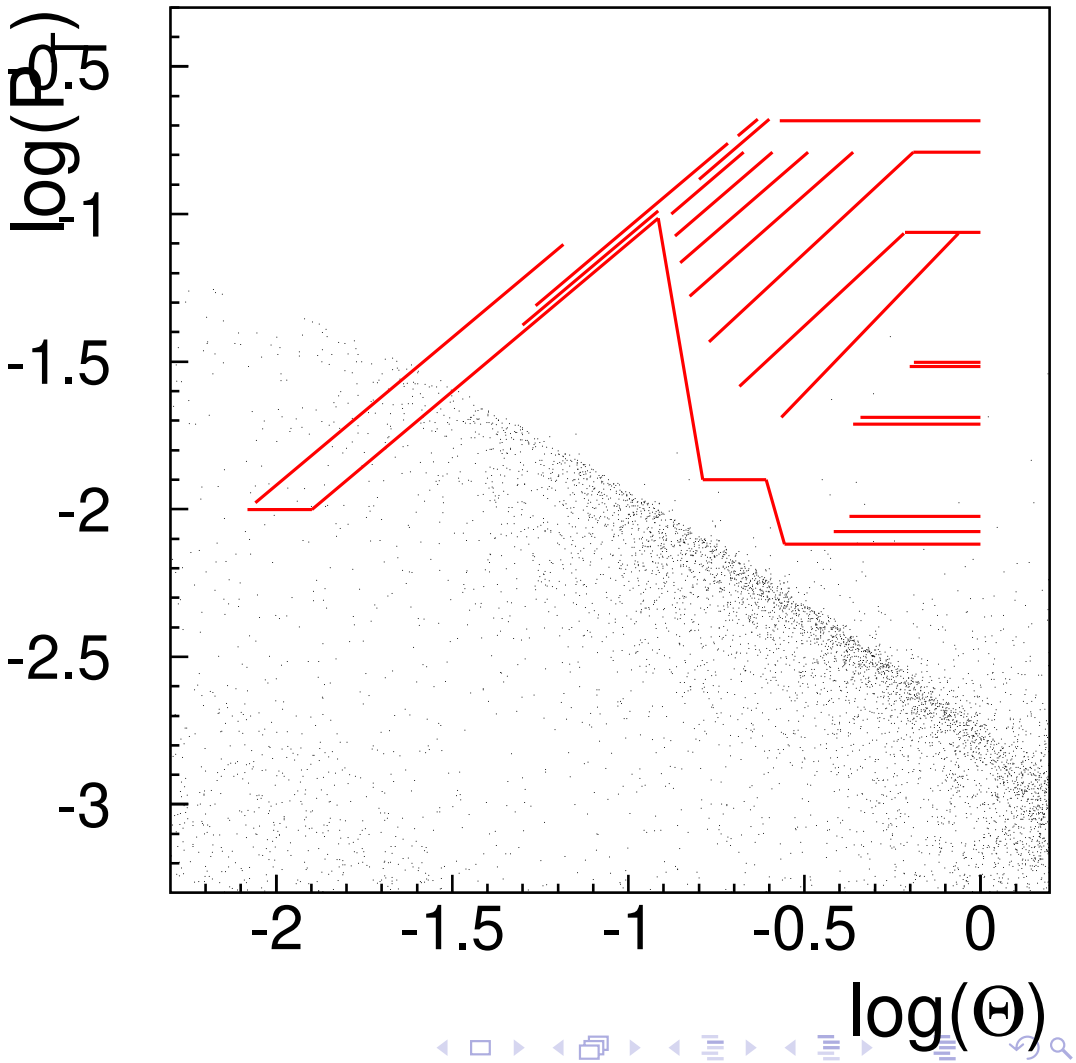


Pairs in HALHF with asymmetric E and symmetric bunch-charge, $\sigma_z = 300\mu$

- Lumi: 0.76. 48k pairs, w/ 185 TeV
- Power: ILC$\times$2.13
- Backward
- Forward
- Symmetric energy: Lumi: 1.06. 64k pairs, w/ 48 TeV
- Power: ILC
- ILC250 SetA
- Lumi: 1.72. 125k pairs, w/ 111 TeV
- Power: ILC



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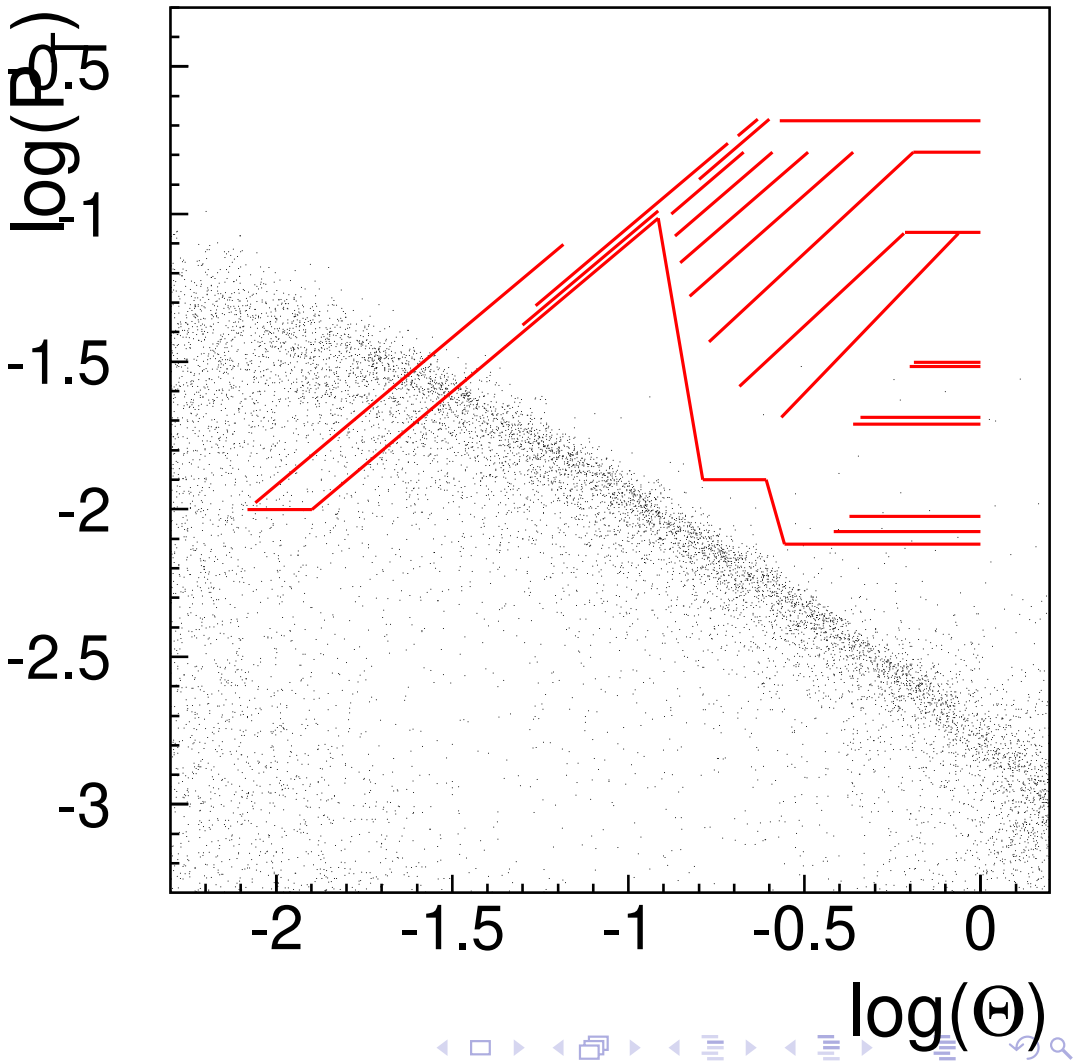

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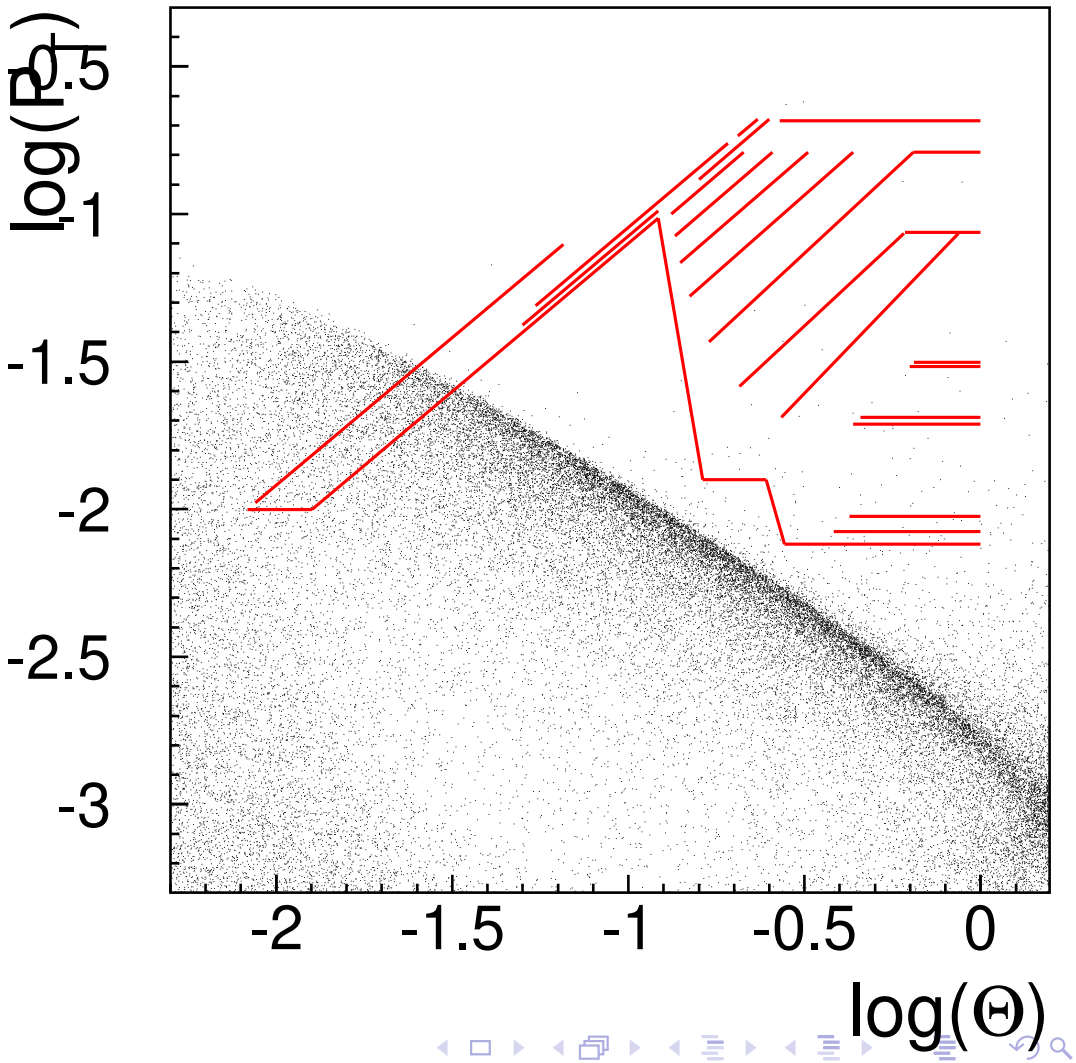

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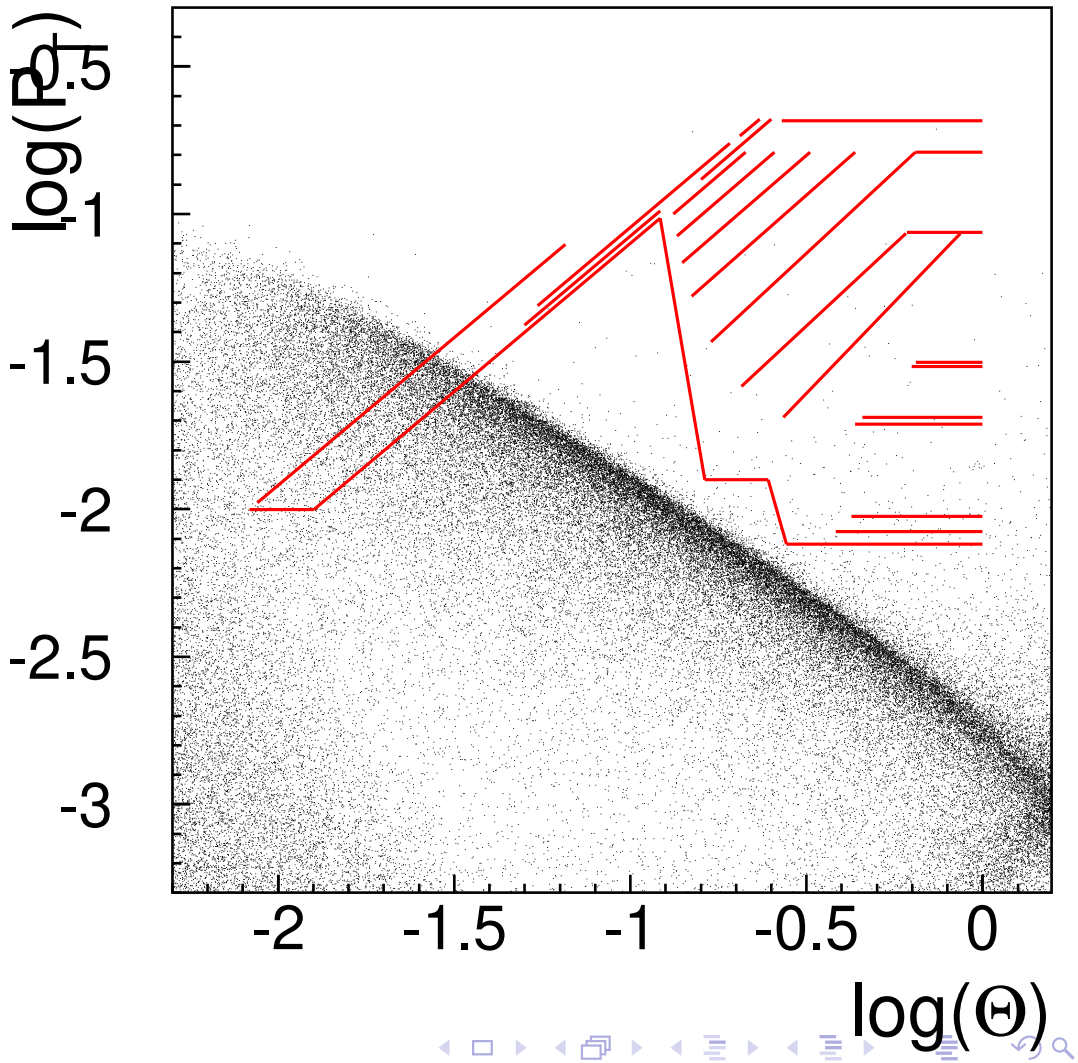

So ....

- There is (still) no such thing as a free lunch.
- The extent of the pairs-cone
  - Does not depend on the energy-symmetry of the beams
  - But depends a lot on the bunch-charge - actually on the two bunch-charges individually, not on their asymmetry.
- The bunch-charge and σ_z at ILC250-SetA are (probably) optimal, and were found by a feed-back loop between the machine and experimental experts.

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