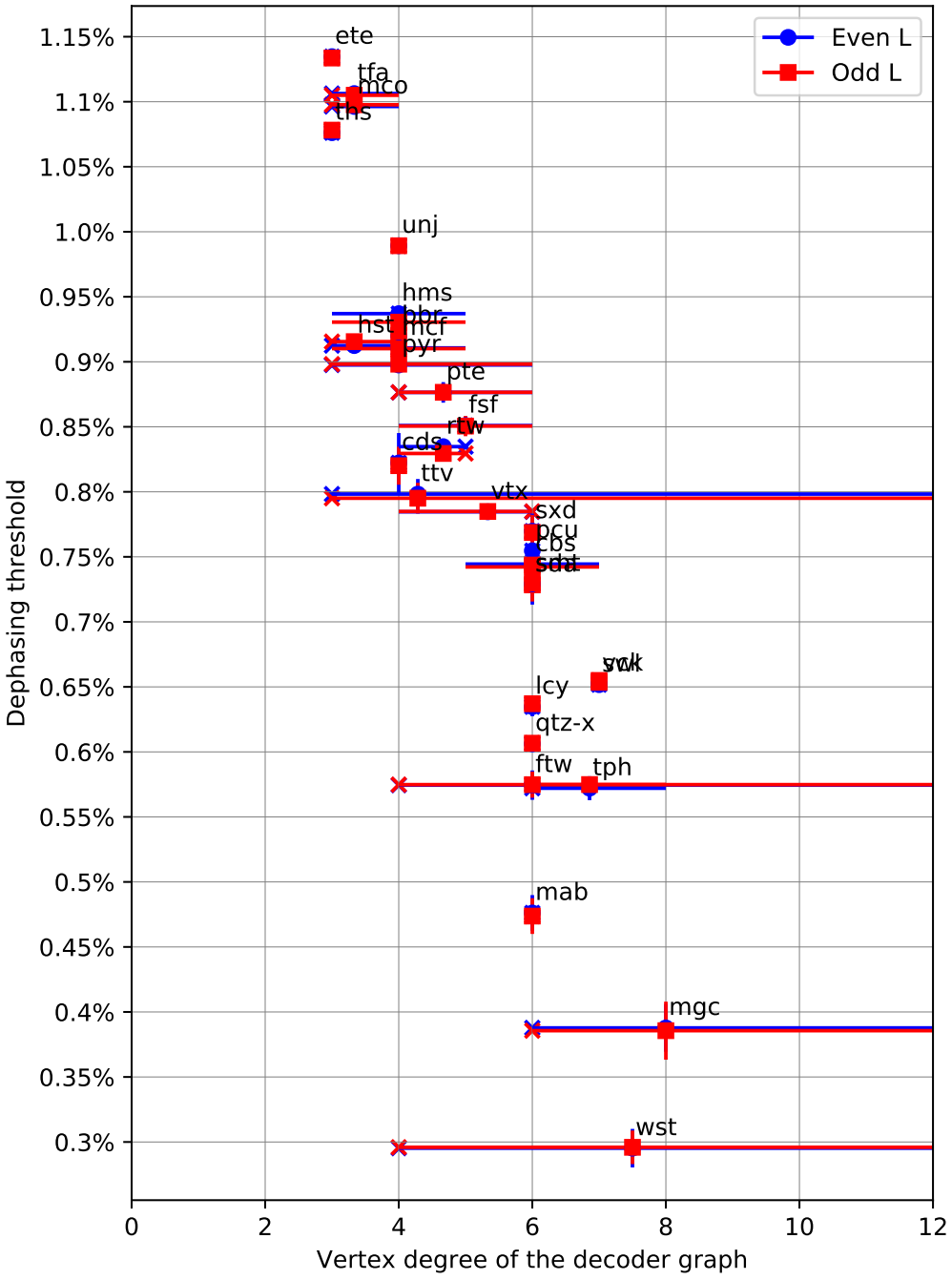
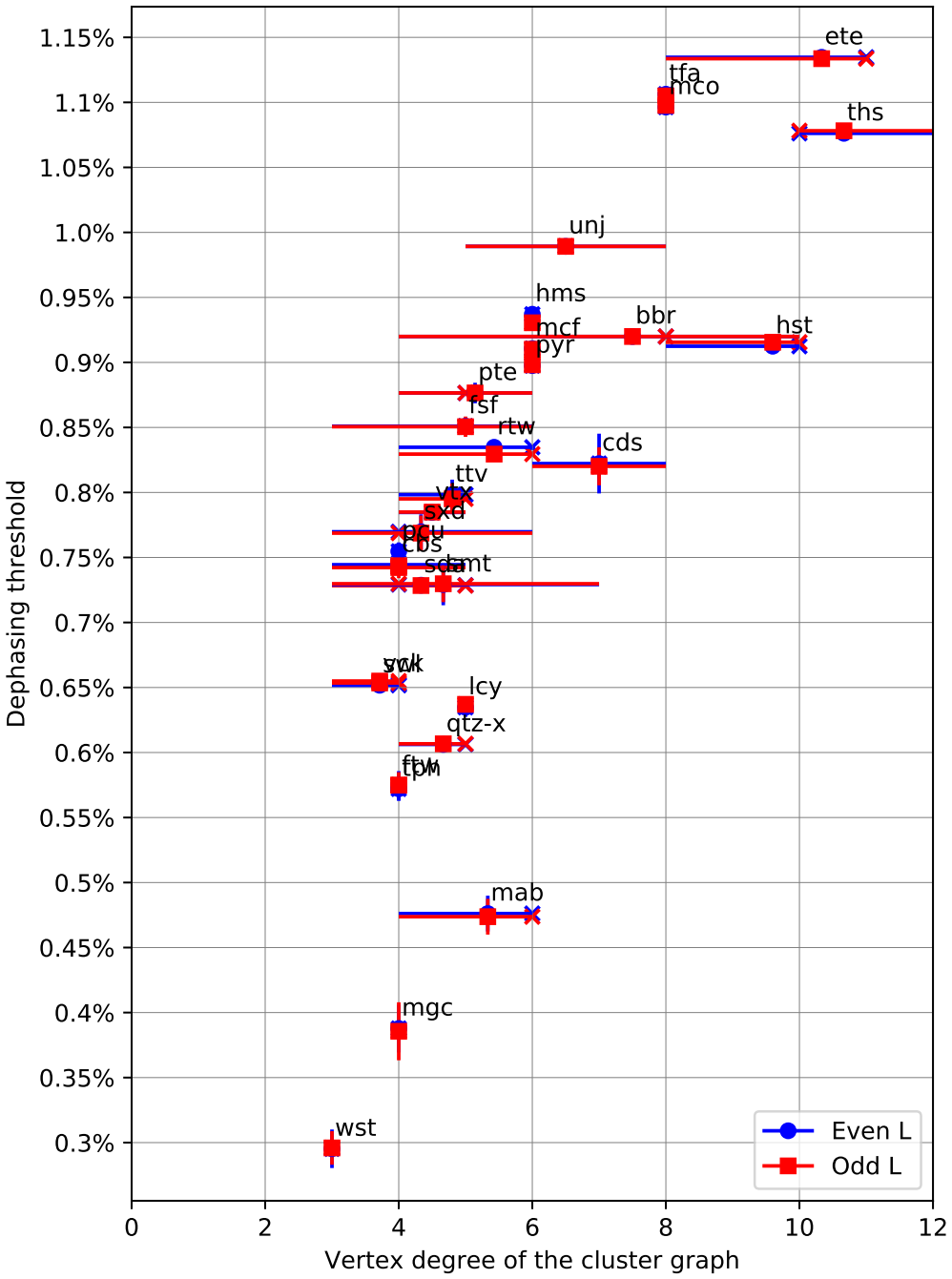
DEPHASING

Dependence of the thresholds on the features of the graph:



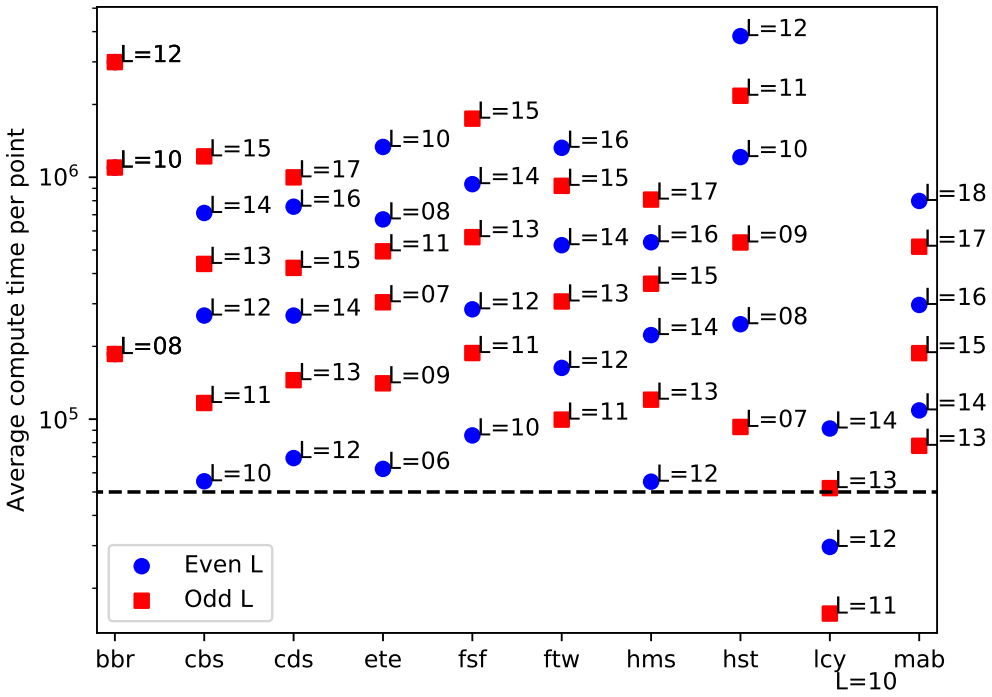


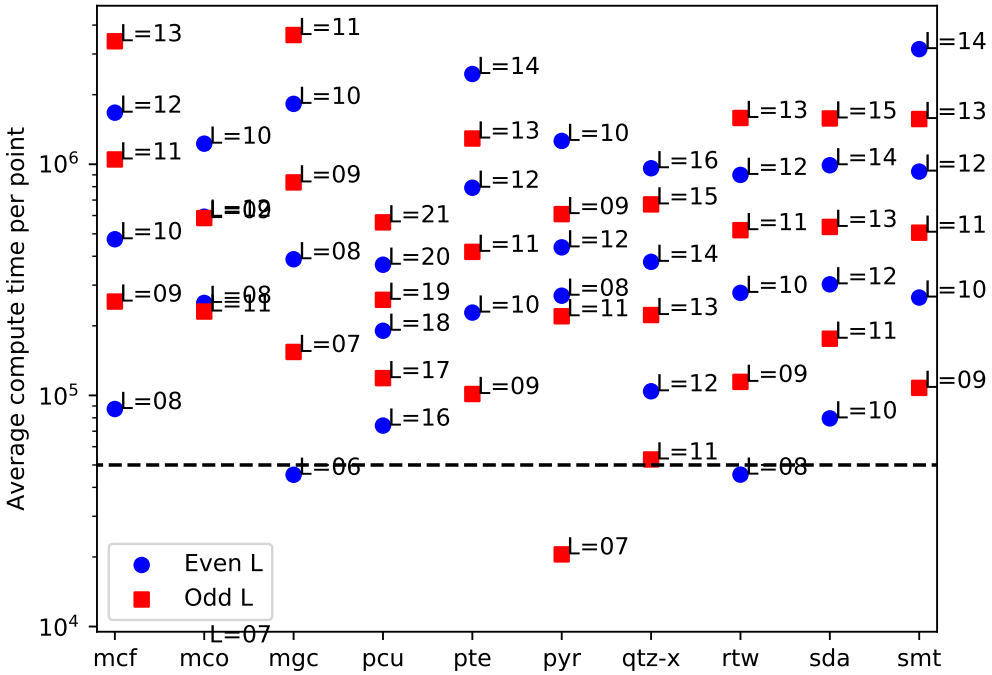
Dephasing threshold
Vertex degree of the cluster graph
1.15%
1.1%
1.05%
1.0%
0.95%
0.9%
0.85%
0.8%
0.75%
0.7%
0.65%
0.6%
0.55%
0.5%
0.45%
0.4%
0.35%
0.3%
0
2
4
6
8
10
12
ete
tfa
mco
ths
unj
hms
bbr
hst
mcf
pyr
pte
fsf
rtw
lcds
ttv
vtx
sxd
pcu
cbs
sda
dmt
lcy
qtz-x
mab
mgc
wst
Even L
Odd L

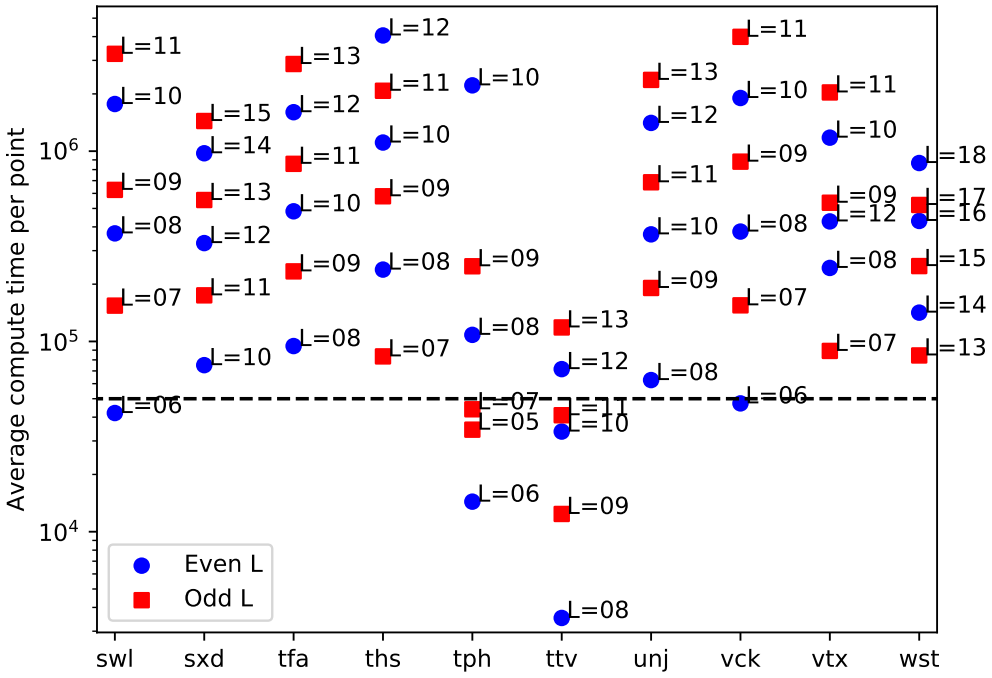
Ranking

Lattice	Avg d	Avg g	Even Threshold	Odd Threshold	Unified Threshold
ete	3.0	10.33	$(1.135 \pm 0.002)\%$	$(1.134 \pm 0.003)\%$	$(1.134 \pm 0.002)\%$
tfa	3.33	8.0	$(1.106 \pm 0.002)\%$	$(1.105 \pm 0.002)\%$	$(1.106 \pm 0.002)\%$
mco	3.33	8.0	$(1.096 \pm 0.003)\%$	$(1.098 \pm 0.003)\%$	$(1.097 \pm 0.002)\%$
ths	3.0	10.67	$(1.076 \pm 0.004)\%$	$(1.078 \pm 0.004)\%$	$(1.077 \pm 0.003)\%$
unj	4.0	6.5	$(0.989 \pm 0.005)\%$	$(0.989 \pm 0.005)\%$	$(0.989 \pm 0.003)\%$
hms	4.0	6.0	$(0.937 \pm 0.004)\%$	$(0.931 \pm 0.006)\%$	$(0.951 \pm 0.027)\%$
bbr	4.0	7.5	$(0.92 \pm 0.005)\%$	$(0.92 \pm 0.005)\%$	$(0.92 \pm 0.003)\%$
hst	3.33	9.6	$(0.912 \pm 0.002)\%$	$(0.916 \pm 0.001)\%$	$(0.914 \pm 0.001)\%$
mcf	4.0	6.0	$(0.911 \pm 0.004)\%$	$(0.91 \pm 0.004)\%$	$(0.91 \pm 0.003)\%$
pyr	4.0	6.0	$(0.898 \pm 0.004)\%$	$(0.898 \pm 0.004)\%$	$(0.898 \pm 0.003)\%$
pte	4.67	5.14	$(0.876 \pm 0.008)\%$	$(0.877 \pm 0.006)\%$	$(0.877 \pm 0.005)\%$
fsf	5.0	5.0	$(0.851 \pm 0.006)\%$	$(0.851 \pm 0.008)\%$	$(0.851 \pm 0.004)\%$
rtw	4.67	5.43	$(0.835 \pm 0.003)\%$	$(0.829 \pm 0.003)\%$	$(0.833 \pm 0.002)\%$
cds	4.0	7.0	$(0.822 \pm 0.023)\%$	$(0.82 \pm 0.015)\%$	$(0.822 \pm 0.014)\%$
ttv	4.29	4.8	$(0.798 \pm 0.012)\%$	$(0.795 \pm 0.012)\%$	$(0.797 \pm 0.008)\%$
vtx	5.33	4.5	$(0.785 \pm 0.005)\%$	$(0.785 \pm 0.005)\%$	$(0.785 \pm 0.003)\%$
sxd	6.0	4.33	$(0.77 \pm 0.013)\%$	$(0.769 \pm 0.014)\%$	$(0.769 \pm 0.008)\%$
pcu	6.0	4.0	$(0.755 \pm 0.007)\%$	$(0.744 \pm 0.01)\%$	$(0.759 \pm 0.013)\%$
cbs	6.0	4.0	$(0.744 \pm 0.004)\%$	$(0.742 \pm 0.004)\%$	$(0.744 \pm 0.002)\%$
sda	6.0	4.33	$(0.729 \pm 0.004)\%$	$(0.728 \pm 0.004)\%$	$(0.729 \pm 0.003)\%$
smt	6.0	4.67	$(0.729 \pm 0.016)\%$	$(0.73 \pm 0.014)\%$	$(0.729 \pm 0.01)\%$
swl	7.0	3.71	$(0.652 \pm 0.003)\%$	$(0.655 \pm 0.002)\%$	$(0.653 \pm 0.002)\%$
vck	7.0	3.71	$(0.653 \pm 0.003)\%$	$(0.653 \pm 0.003)\%$	$(0.653 \pm 0.002)\%$
lcy	6.0	5.0	$(0.635 \pm 0.007)\%$	$(0.637 \pm 0.005)\%$	$(0.636 \pm 0.004)\%$
qtz-x	6.0	4.67	$(0.606 \pm 0.006)\%$	$(0.607 \pm 0.005)\%$	$(0.606 \pm 0.003)\%$
ftw	6.0	4.0	$(0.574 \pm 0.011)\%$	$(0.575 \pm 0.01)\%$	$(0.575 \pm 0.007)\%$
tph	6.86	4.0	$(0.572 \pm 0.009)\%$	$(0.575 \pm 0.004)\%$	$(0.574 \pm 0.004)\%$
mab	6.0	5.33	$(0.476 \pm 0.014)\%$	$(0.474 \pm 0.014)\%$	$(0.476 \pm 0.009)\%$
mgc	8.0	4.0	$(0.388 \pm 0.018)\%$	$(0.386 \pm 0.022)\%$	$(0.387 \pm 0.013)\%$
wst	7.5	3.0	$(0.295 \pm 0.015)\%$	$(0.296 \pm 0.013)\%$	$(0.296 \pm 0.009)\%$

Precision in terms of compute time:






Average compute time per point
10^6
10^5
10^4
Even L
Odd L
swl
sxd
tfa
ths
tph
ttv
unj
vck
vtx
wst
L=11
L=10
L=09
L=08
L=07
L=06
L=15
L=14
L=13
L=12
L=11
L=10
L=09
L=08
L=07
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L=10
L=09
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L=07
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L=05
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L=09
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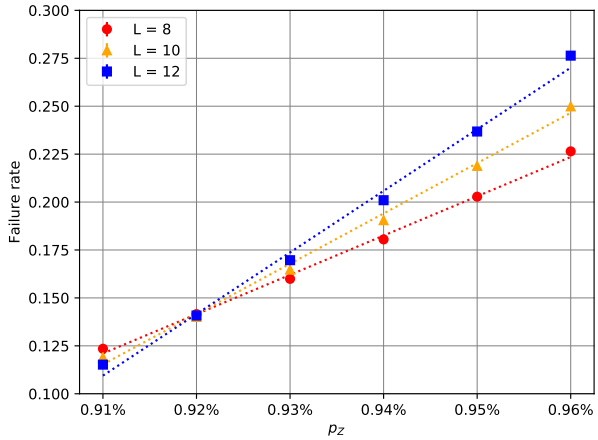
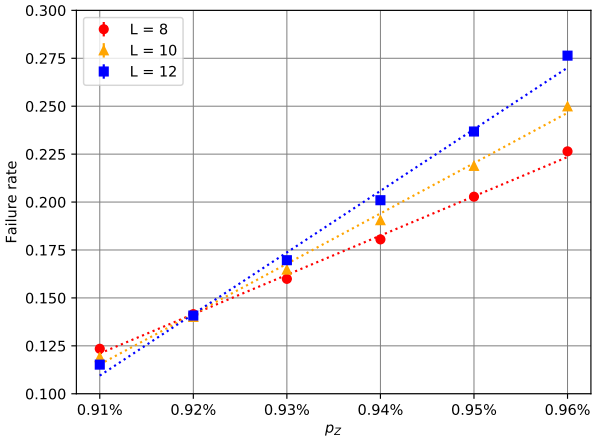
L=09
L=08
L=07
L=06
L=11
L=10
L=09
L=08
L=07
L=18
L=17
L=16
L=15
L=14
L=13

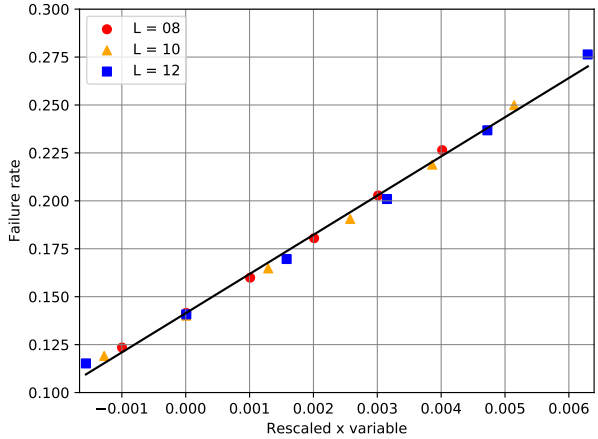
bbr

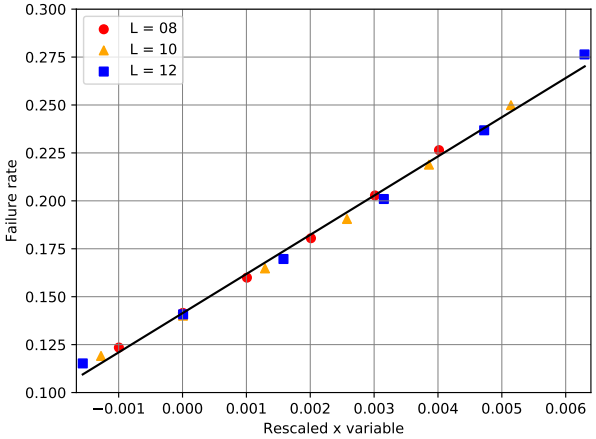
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

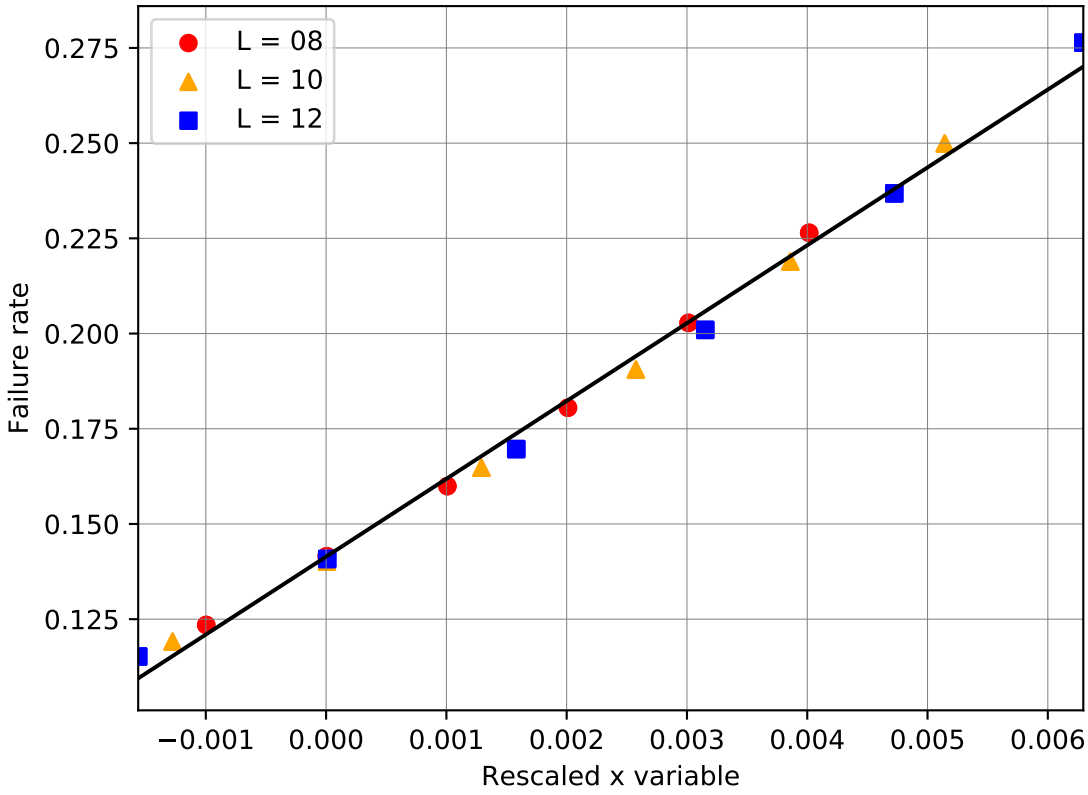




$$p_{even} = (0.92 \pm 0.005)\%$$

$$p_{odd} = (0.92 \pm 0.005)\%$$

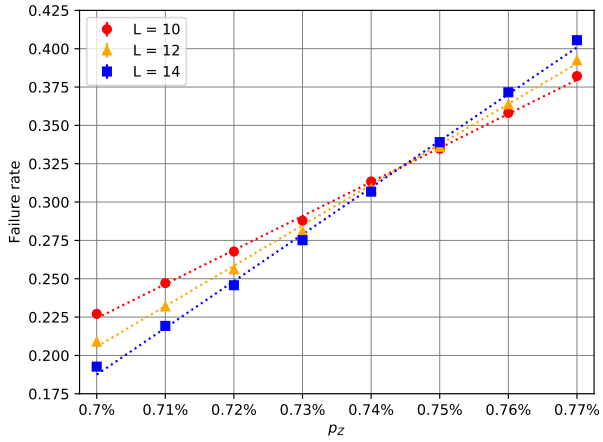
Unified fit:

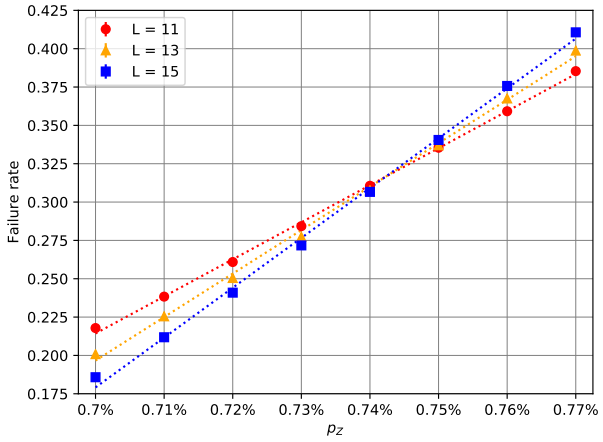


$$p_{th} = (0.92 \pm 0.003)\%$$

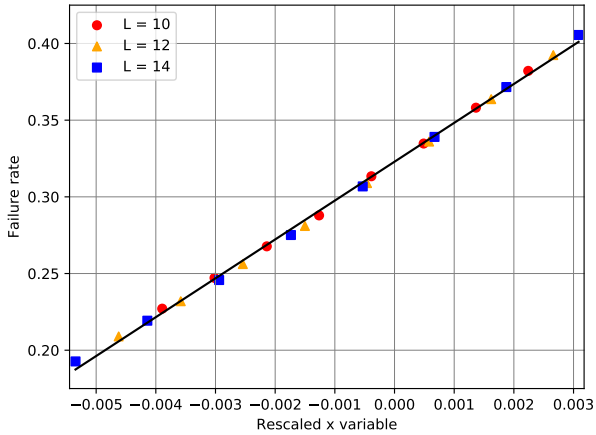
cbs

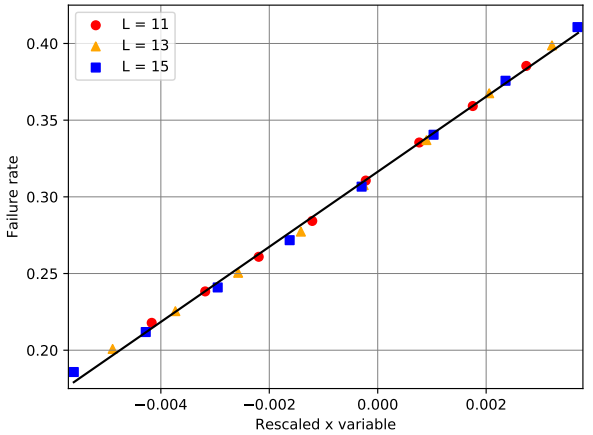
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

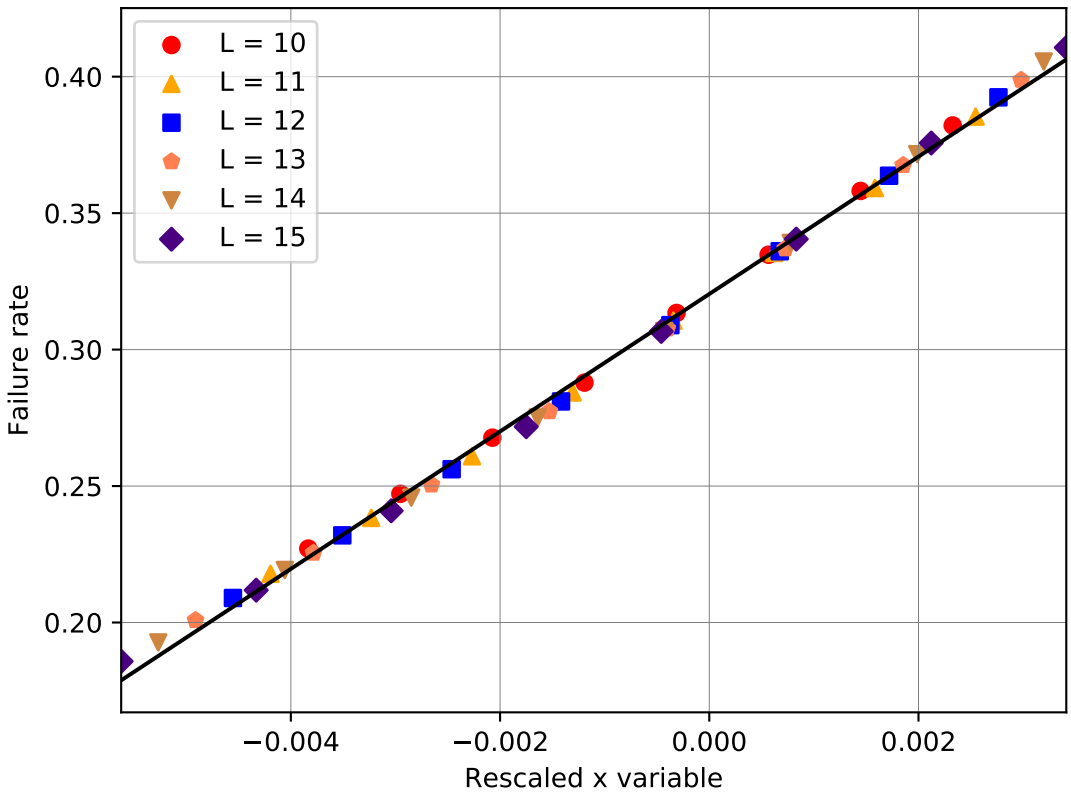




$$p_{even} = (0.744 \pm 0.004)\%$$

$$p_{odd} = (0.742 \pm 0.004)\%$$

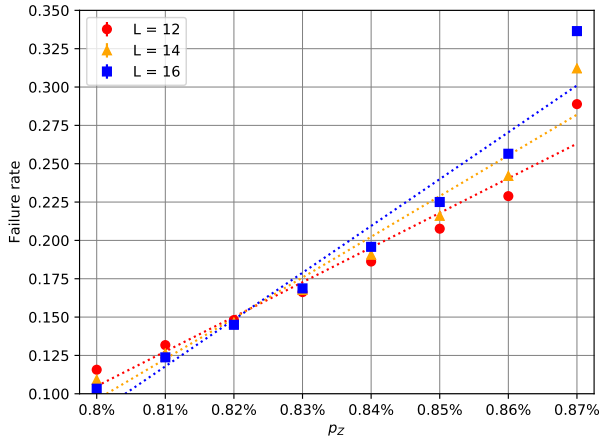
Unified fit:

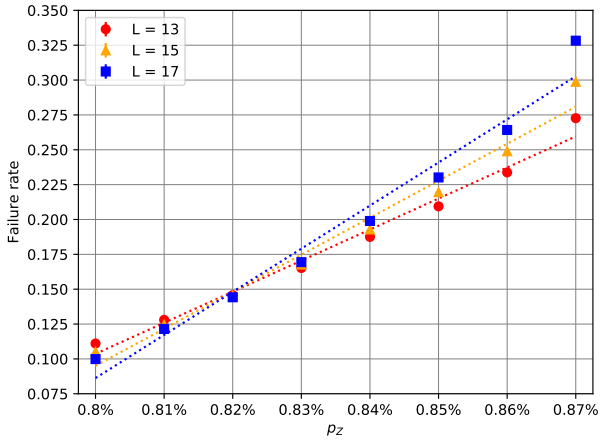


$$p_{th} = (0.744 \pm 0.002)\%$$

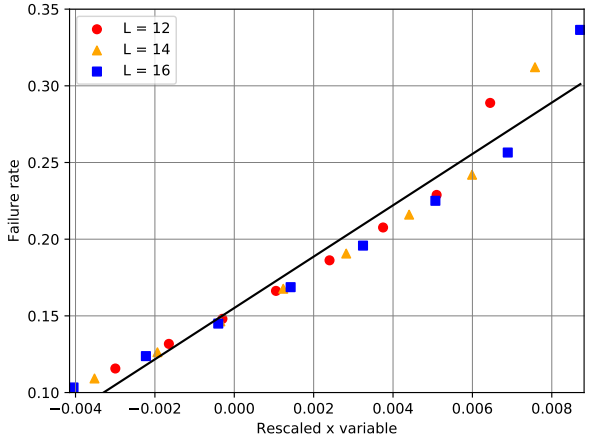
cds

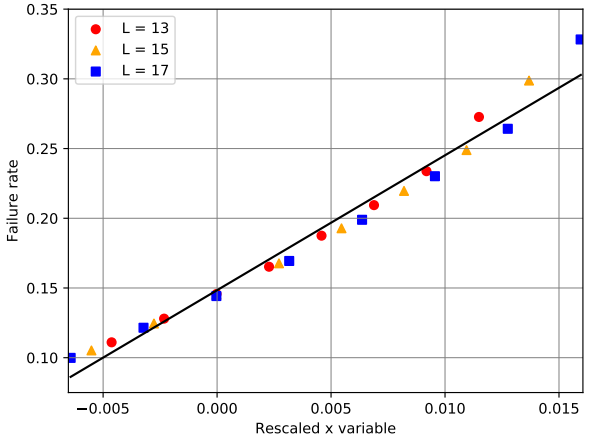
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

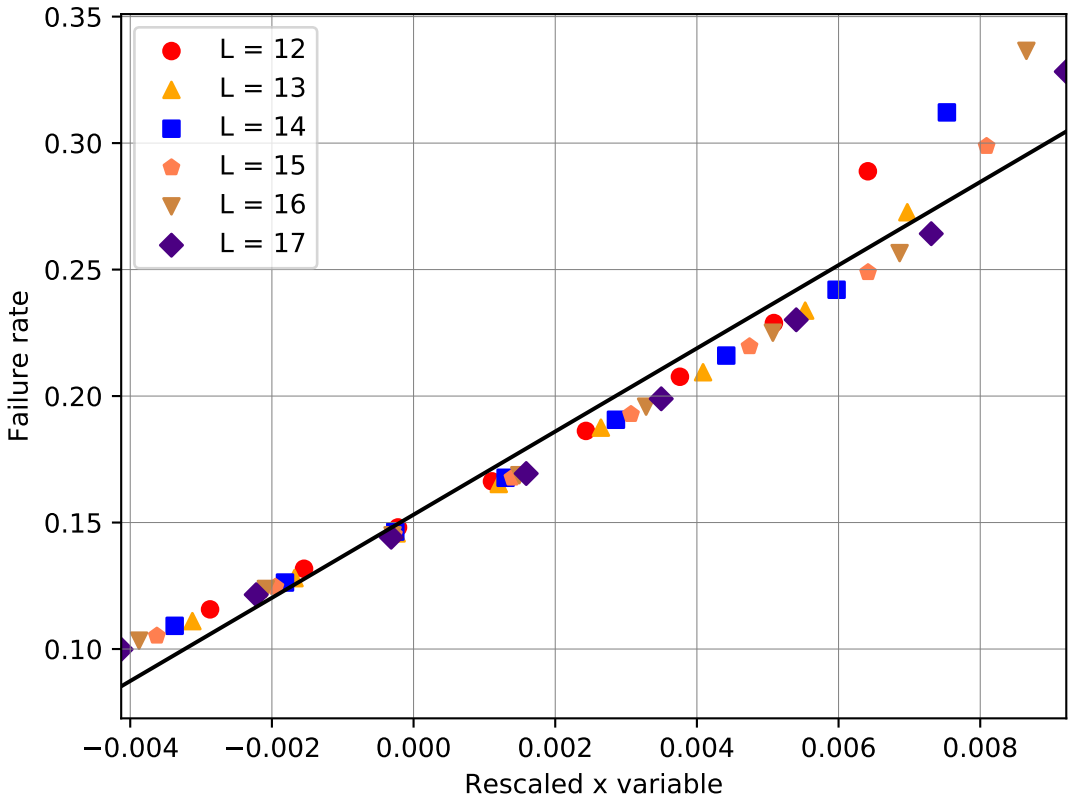




$$p_{even} = (0.822 \pm 0.023)\%$$

$$p_{odd} = (0.82 \pm 0.015)\%$$

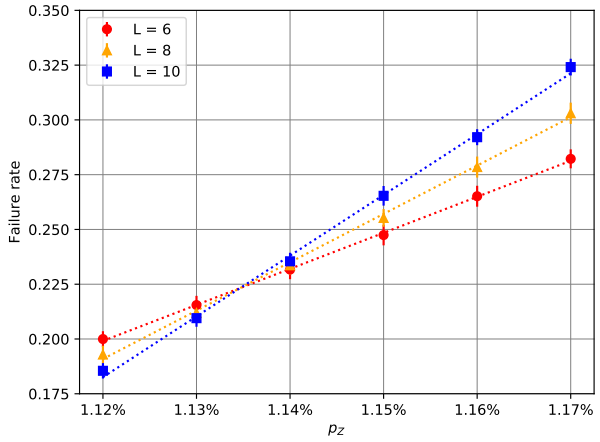
Unified fit:

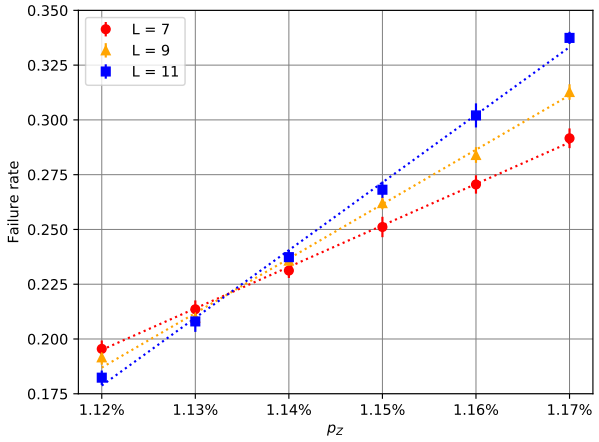


$$p_{th} = (0.822 \pm 0.014)\%$$

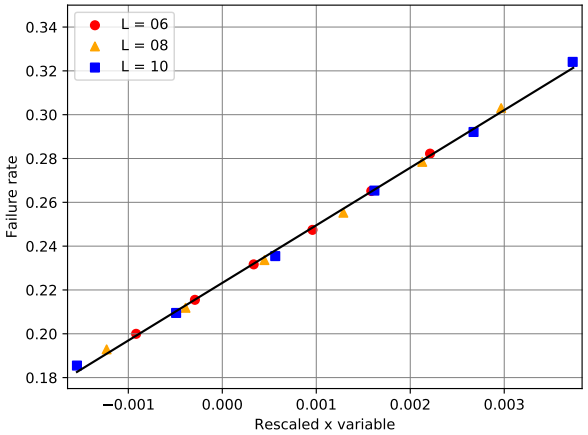
ete

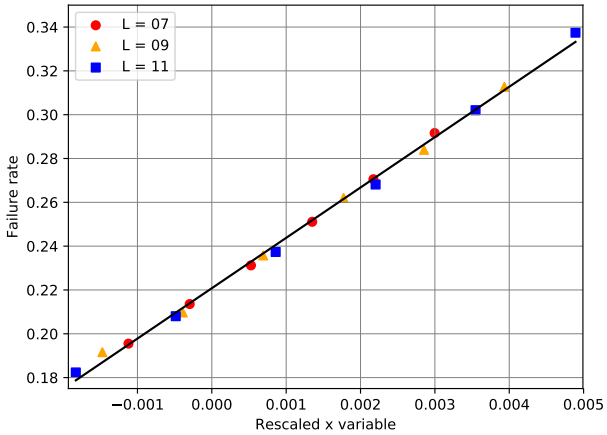
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

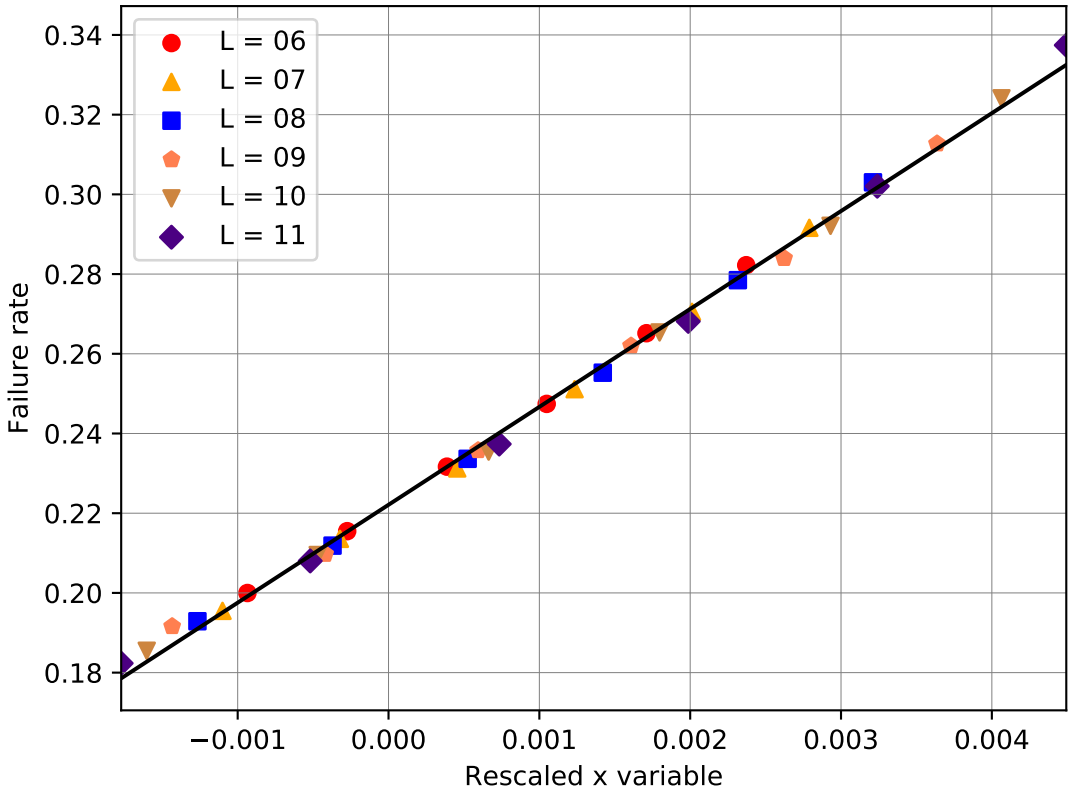




$$p_{even} = (1.135 \pm 0.002)\%$$

$$p_{odd} = (1.134 \pm 0.003)\%$$

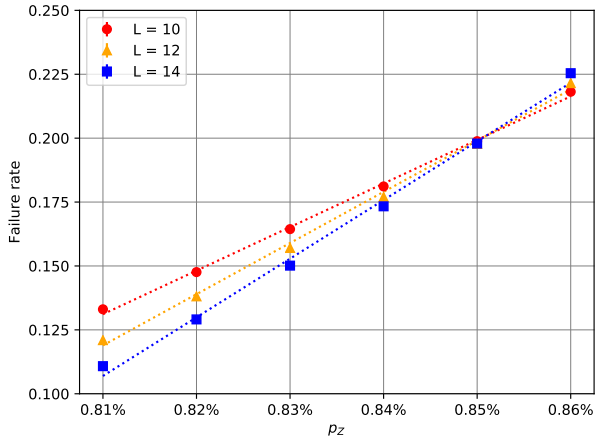
Unified fit:

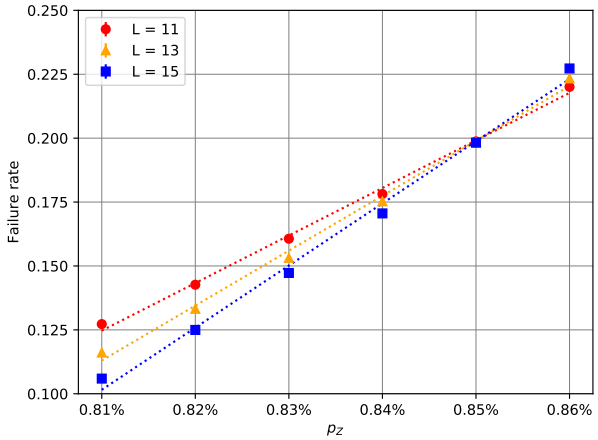


$$p_{th} = (1.134 \pm 0.002)\%$$

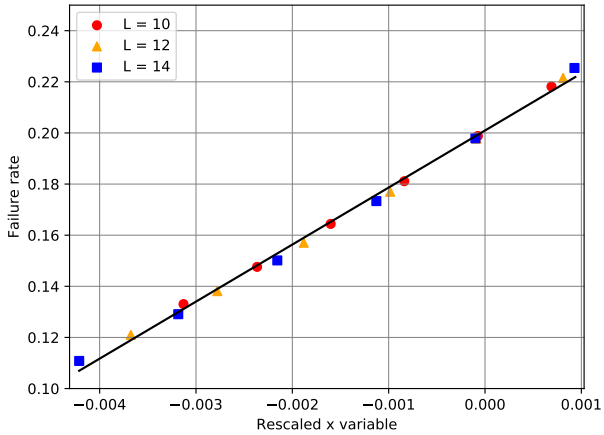
fsf

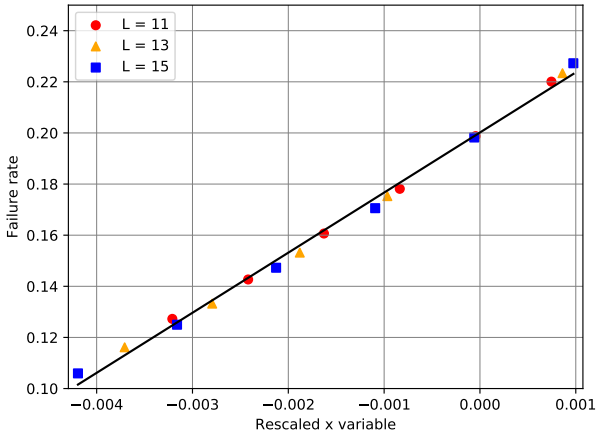
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

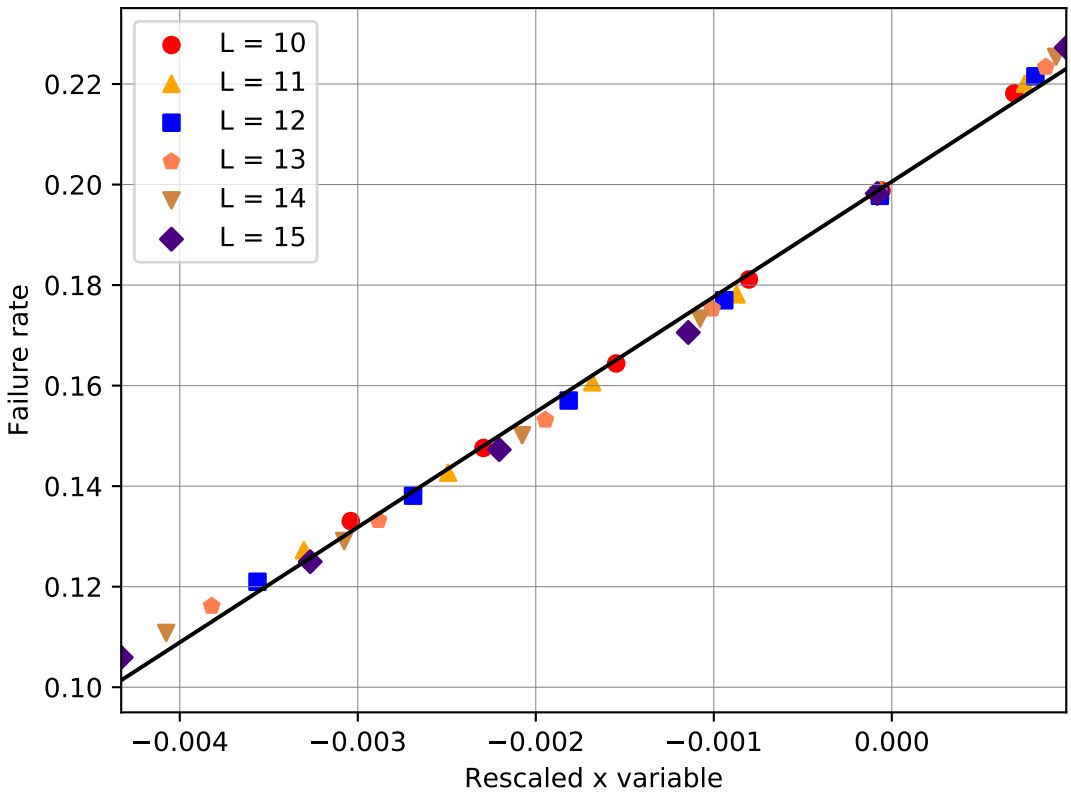




$$p_{even} = (0.851 \pm 0.006)\%$$

$$p_{odd} = (0.851 \pm 0.008)\%$$

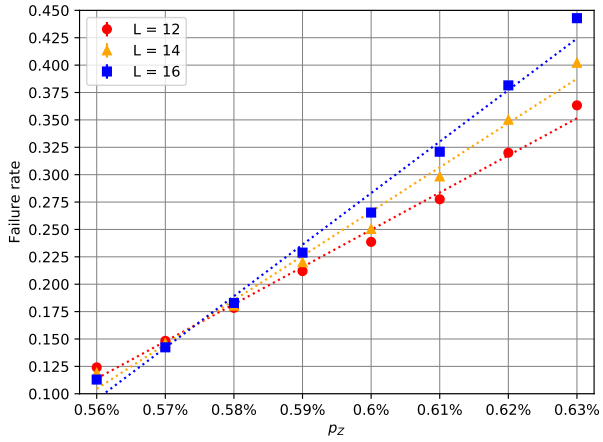
Unified fit:

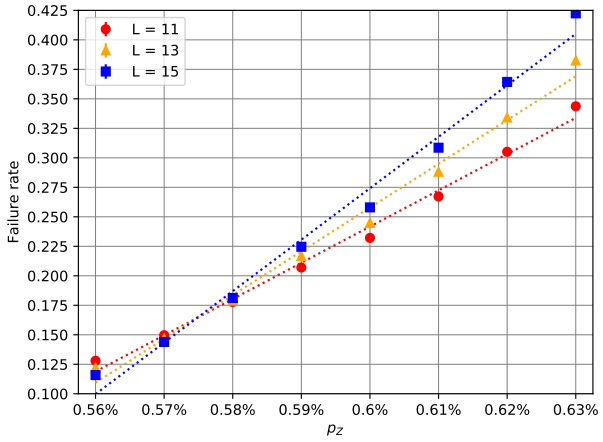


$$p_{th} = (0.851 \pm 0.004)\%$$

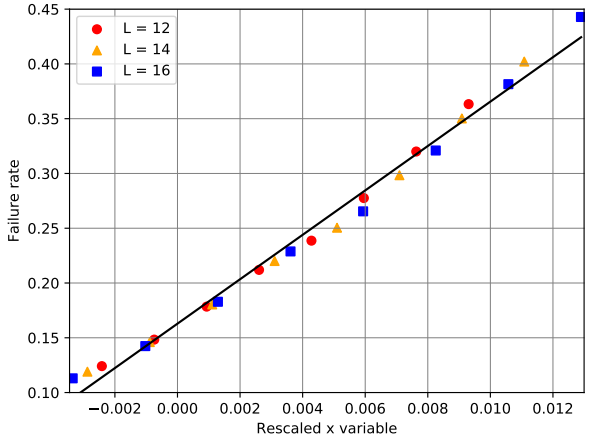
ftw

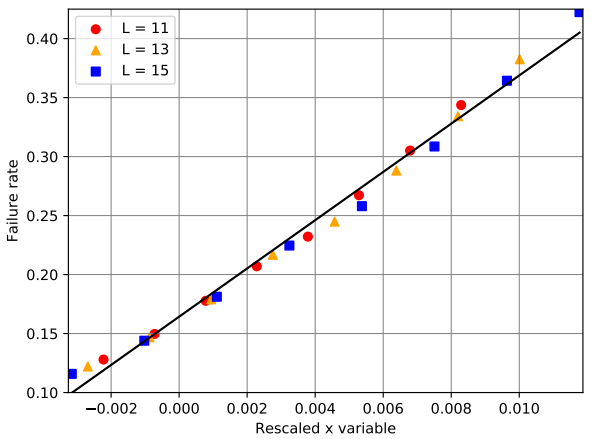
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

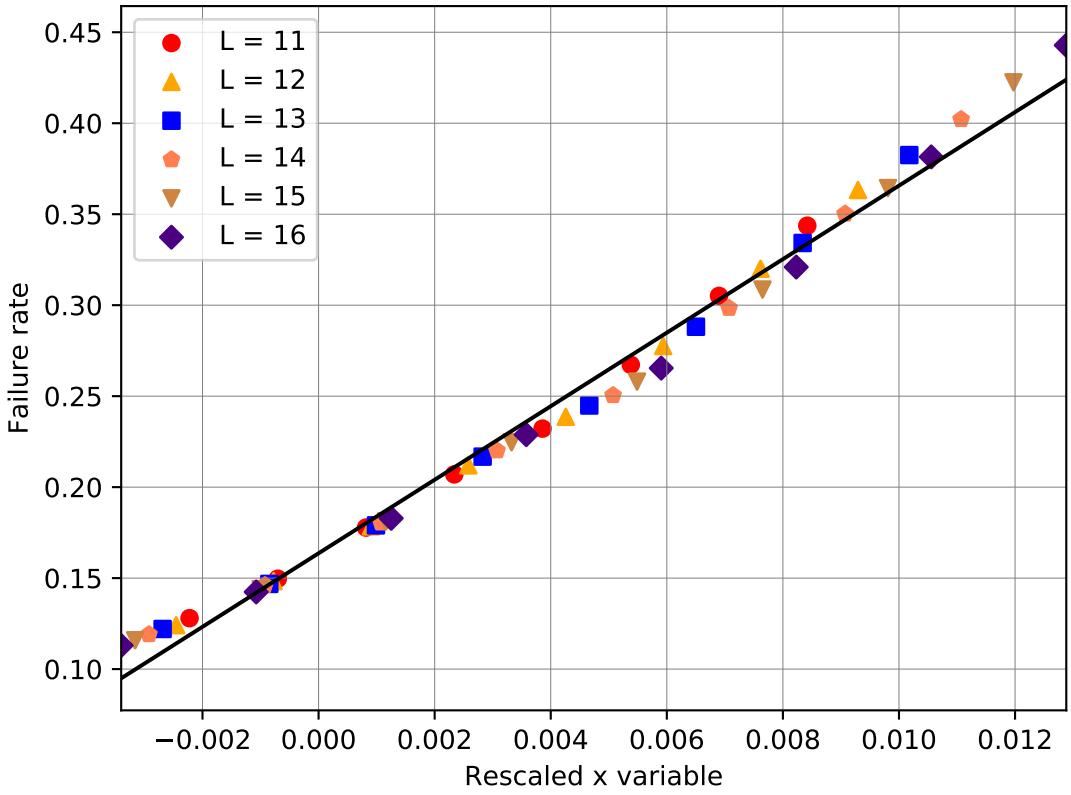




$$p_{even} = (0.574 \pm 0.011)\%$$

$$p_{odd} = (0.575 \pm 0.01)\%$$

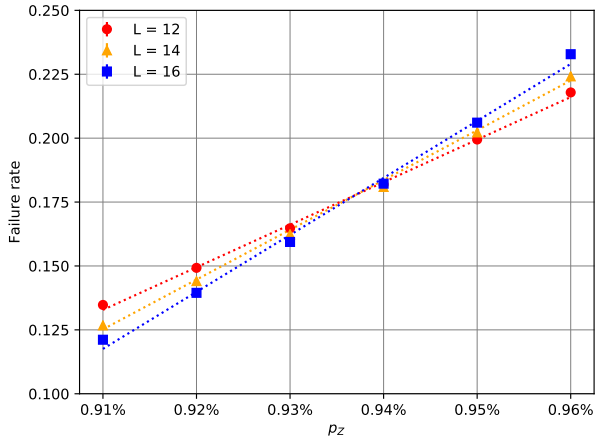
Unified fit:

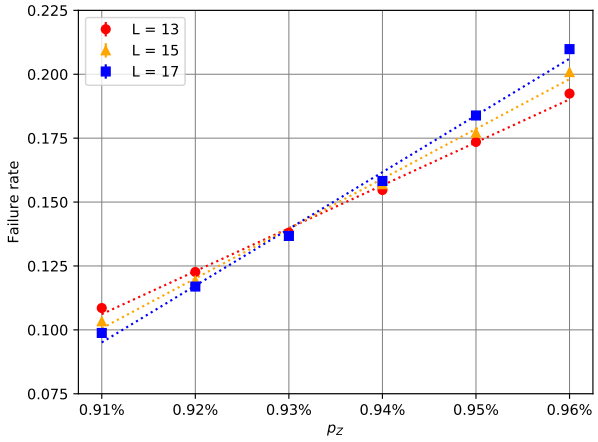


$$p_{th} = (0.575 \pm 0.007)\%$$

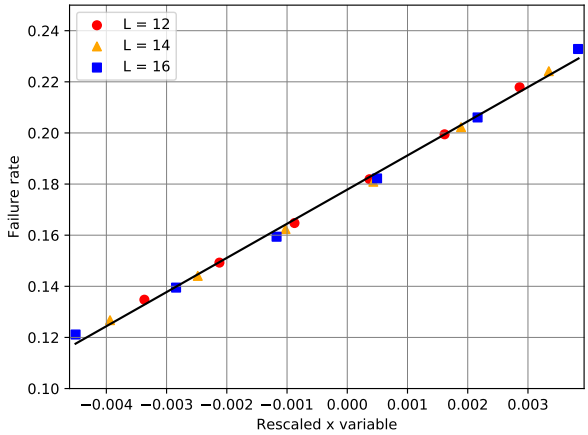
hms

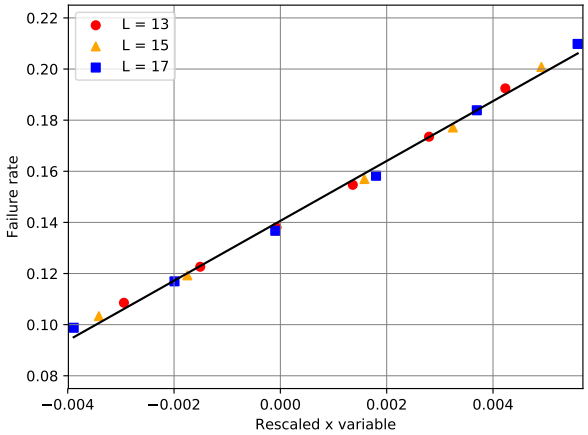
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

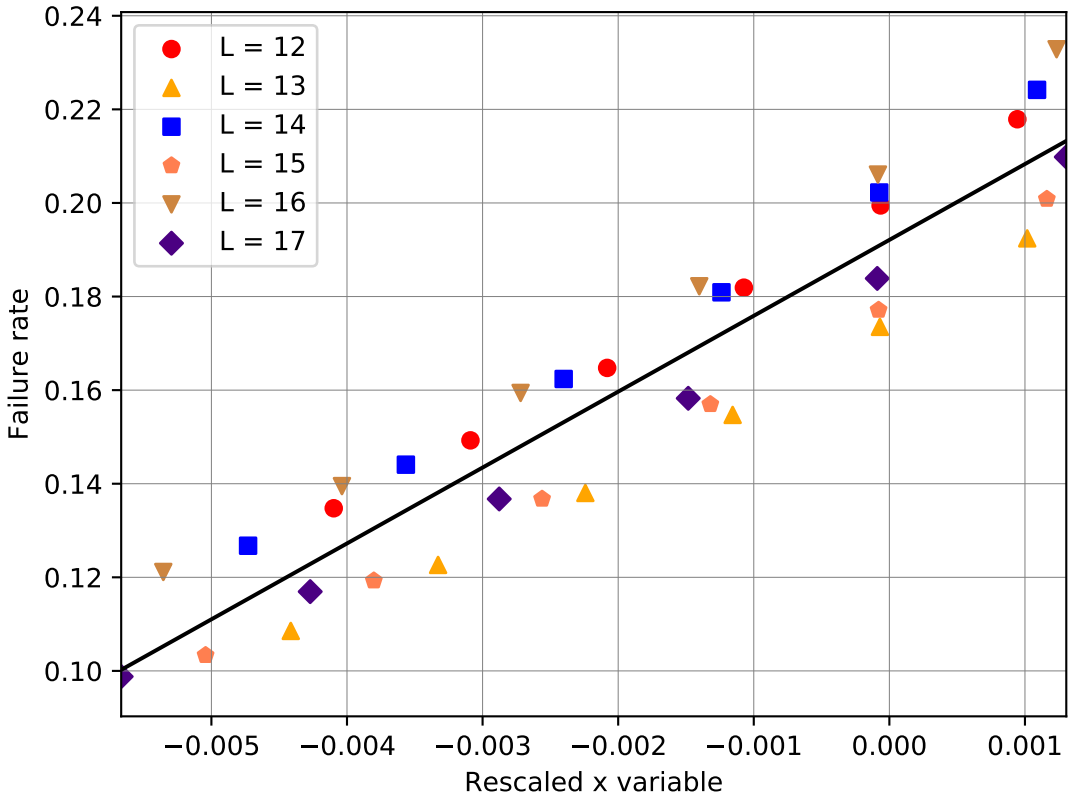




$$p_{even} = (0.937 \pm 0.004)\%$$

$$p_{odd} = (0.931 \pm 0.006)\%$$

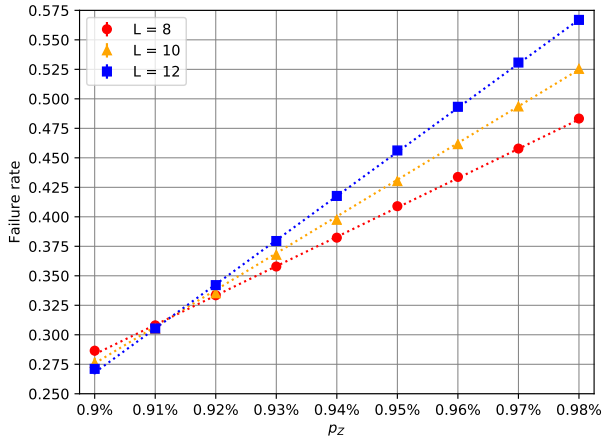
Unified fit:

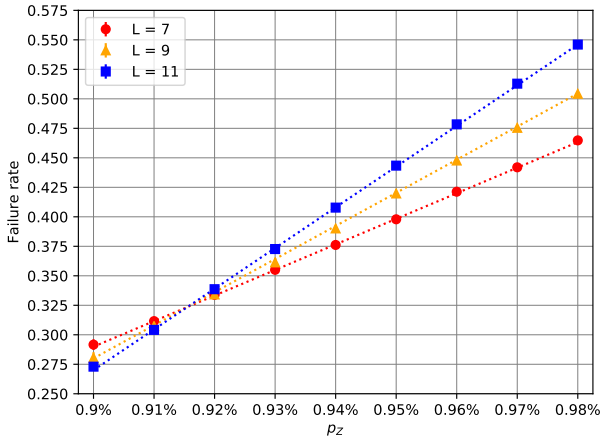


$$p_{th} = (0.951 \pm 0.027)\%$$

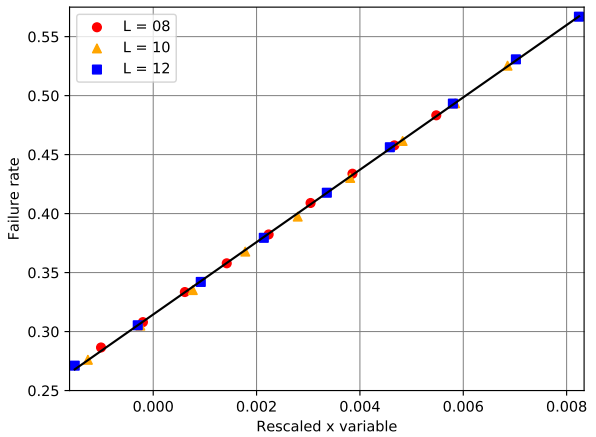
hst

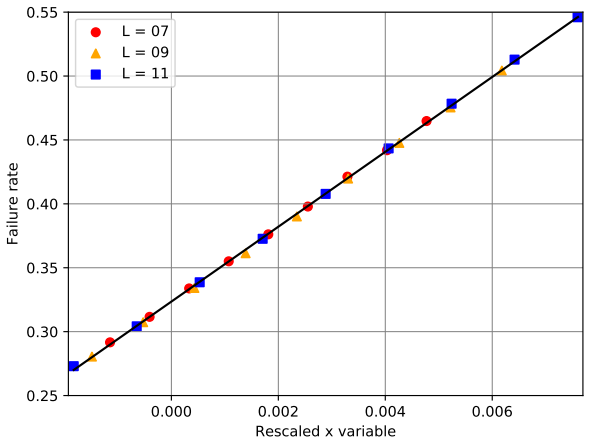
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

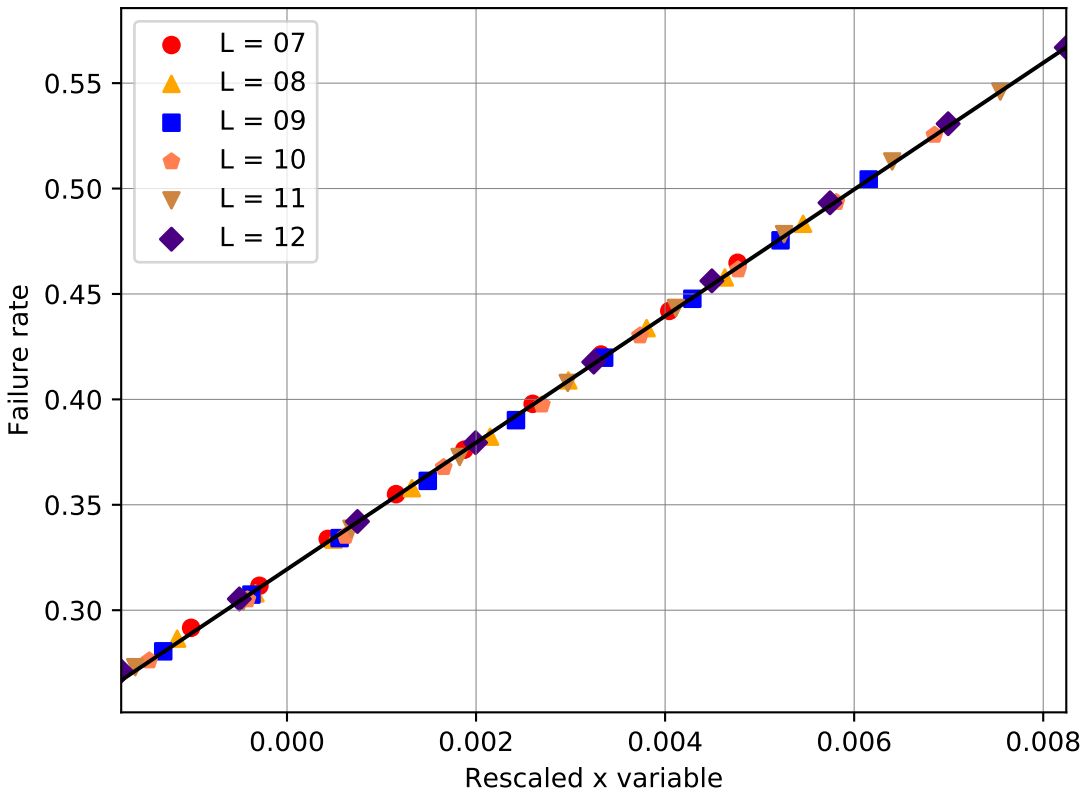




$$p_{even} = (0.912 \pm 0.002)\%$$

$$p_{odd} = (0.916 \pm 0.001)\%$$

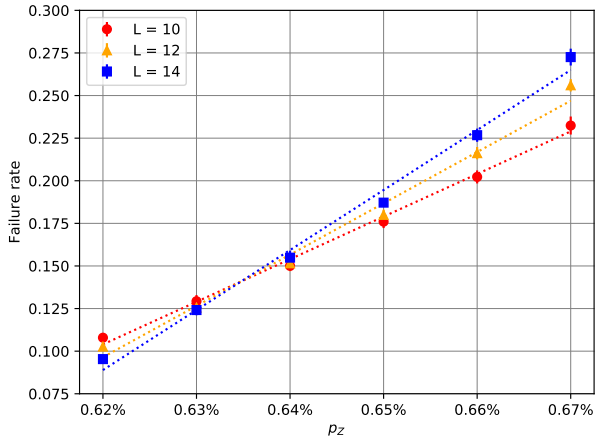
Unified fit:

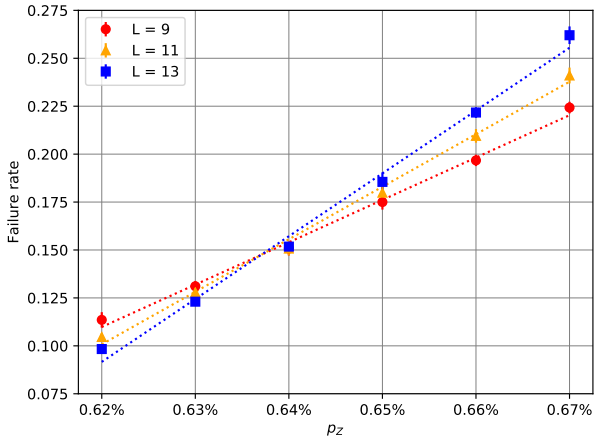


$$p_{th} = (0.914 \pm 0.001)\%$$

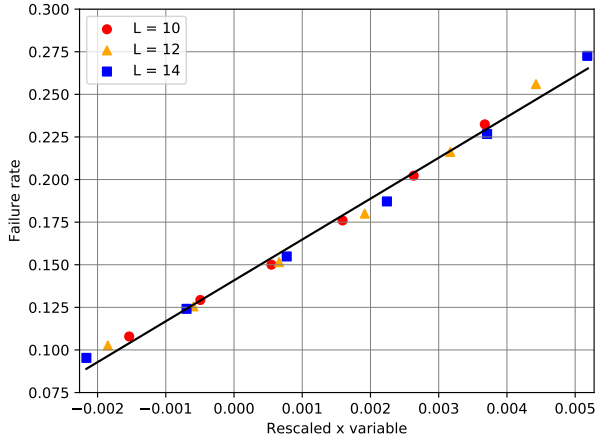
lcy

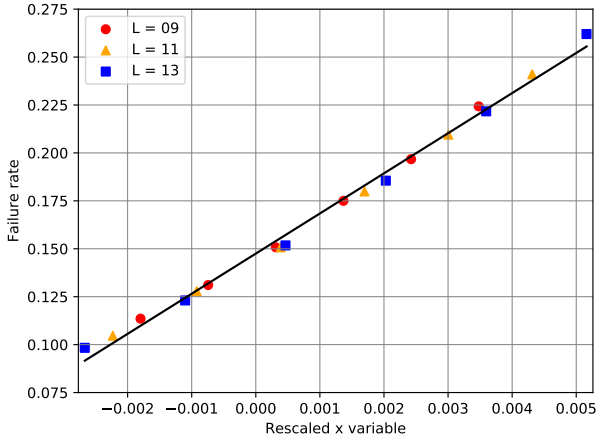
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

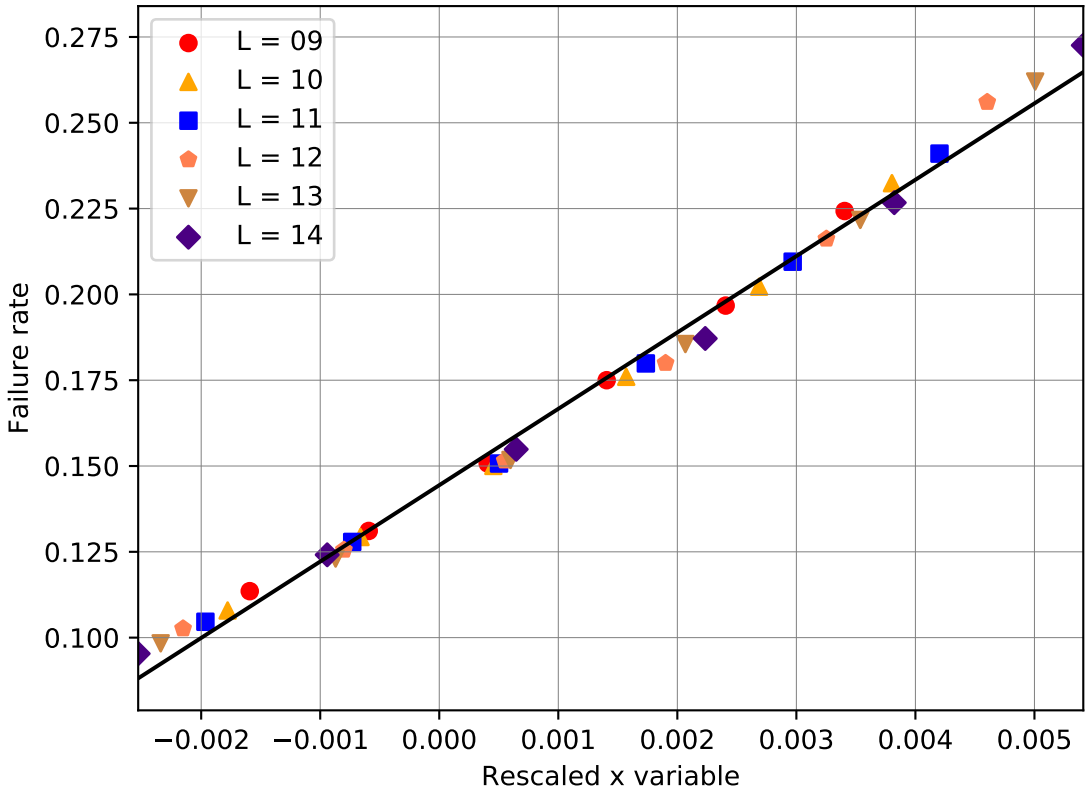




$$p_{even} = (0.635 \pm 0.007)\%$$

$$p_{odd} = (0.637 \pm 0.005)\%$$

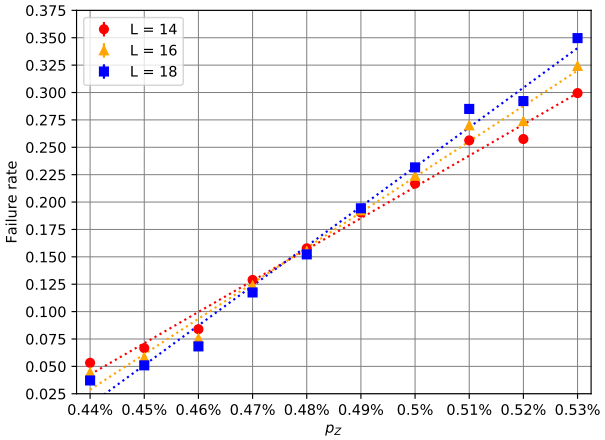
Unified fit:

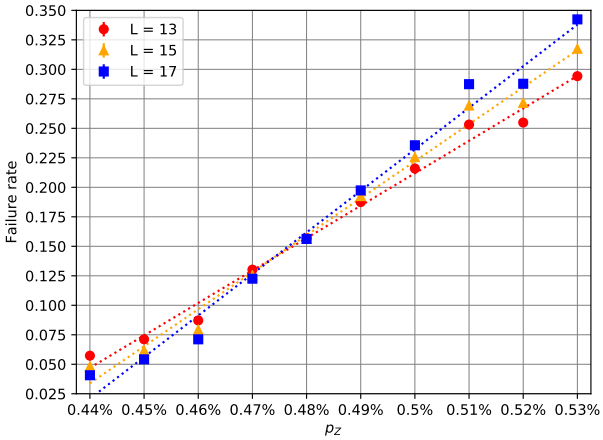


$$p_{th} = (0.636 \pm 0.004)\%$$

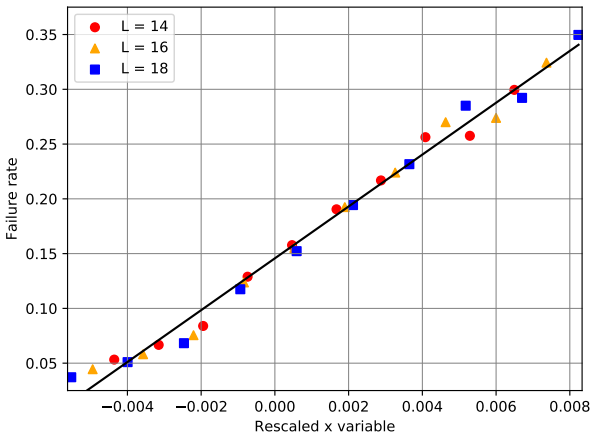
mab

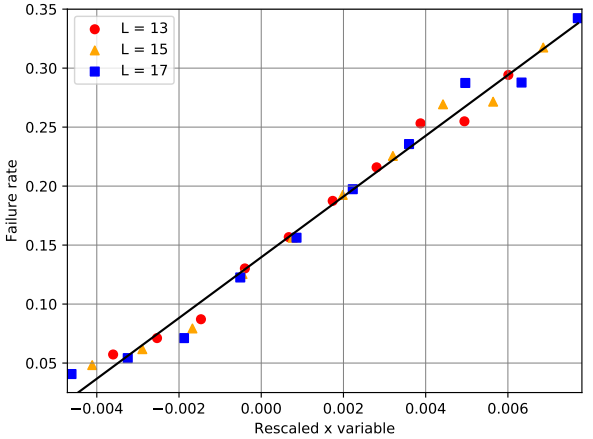
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

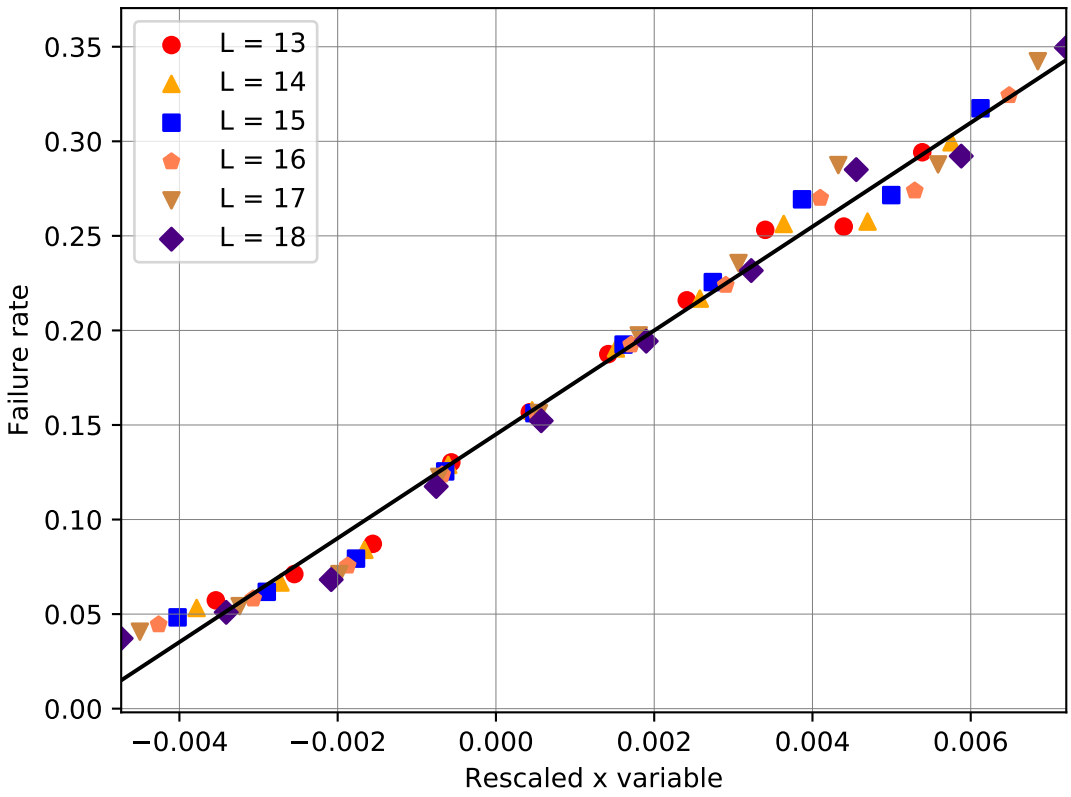




$$p_{even} = (0.476 \pm 0.014)\%$$

$$p_{odd} = (0.474 \pm 0.014)\%$$

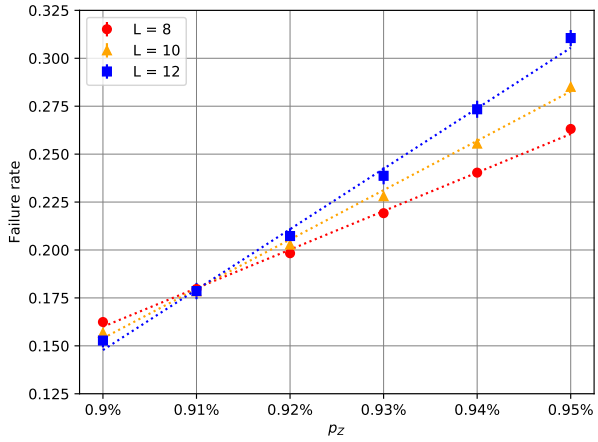
Unified fit:

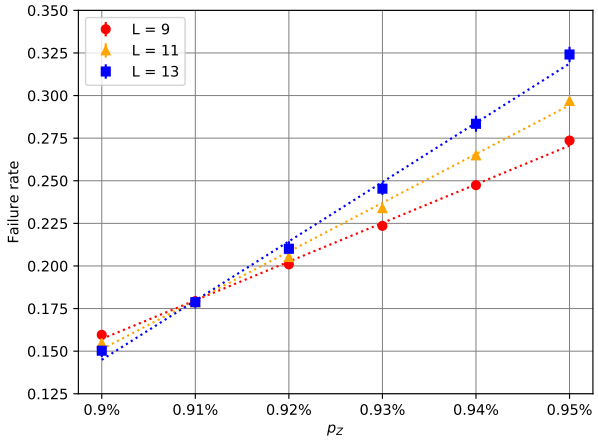


$$p_{th} = (0.476 \pm 0.009)\%$$

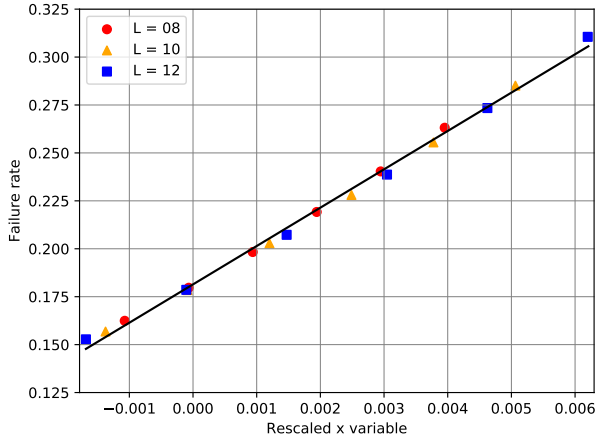
mcf

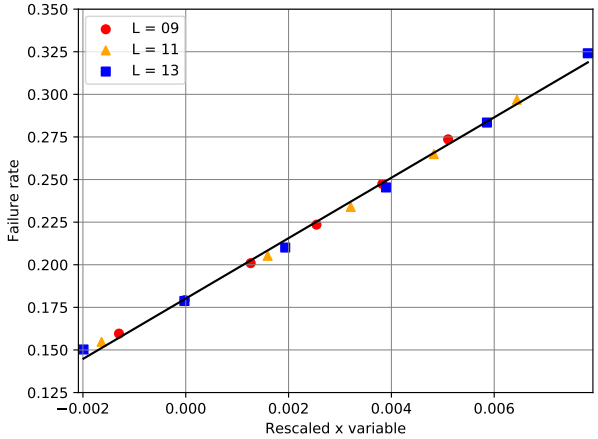
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

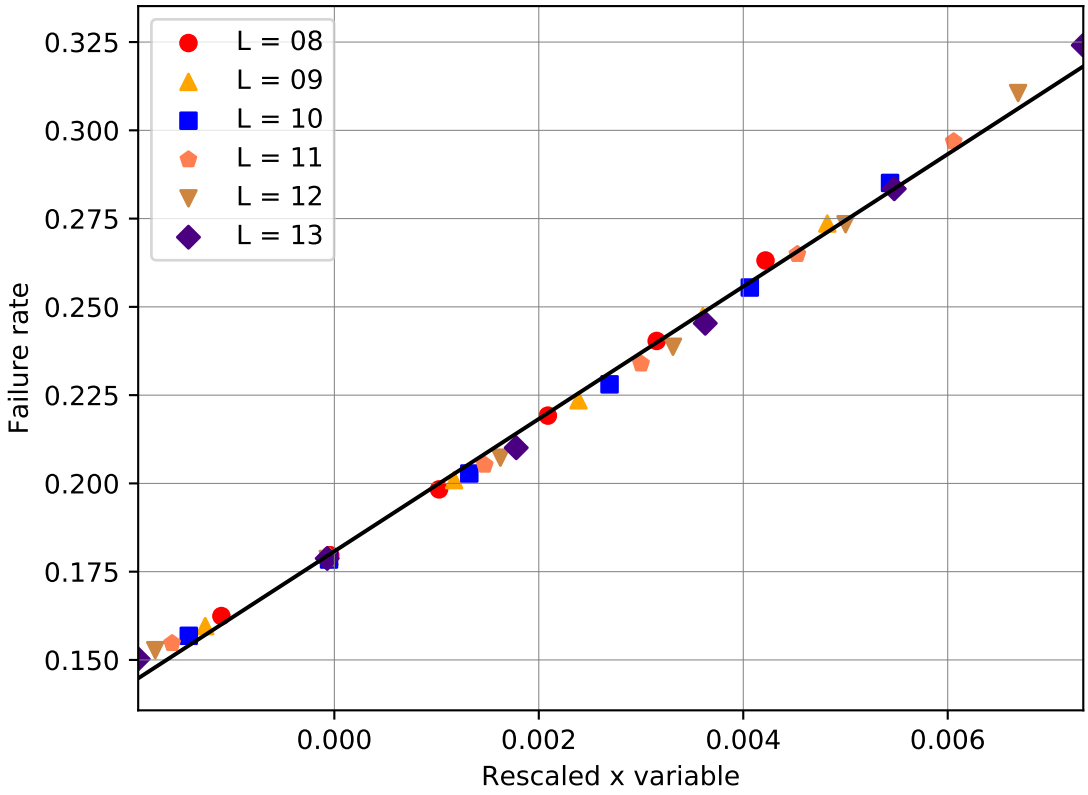




$$p_{even} = (0.911 \pm 0.004)\%$$

$$p_{odd} = (0.91 \pm 0.004)\%$$

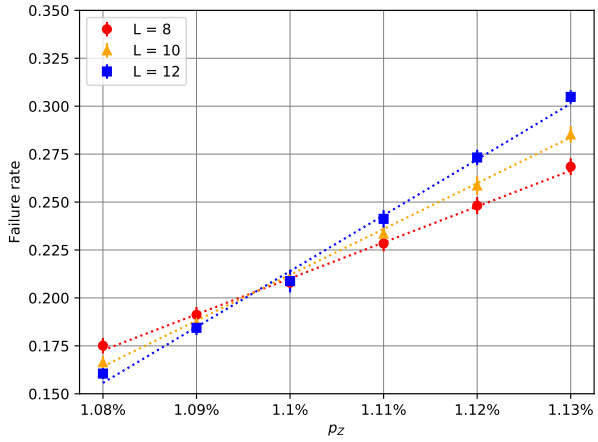
Unified fit:

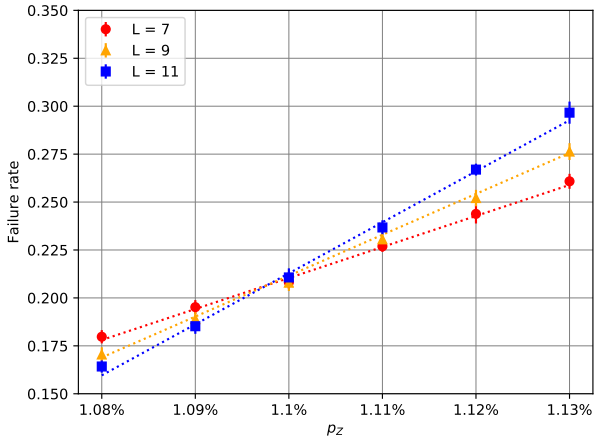


$$p_{th} = (0.91 \pm 0.003)\%$$

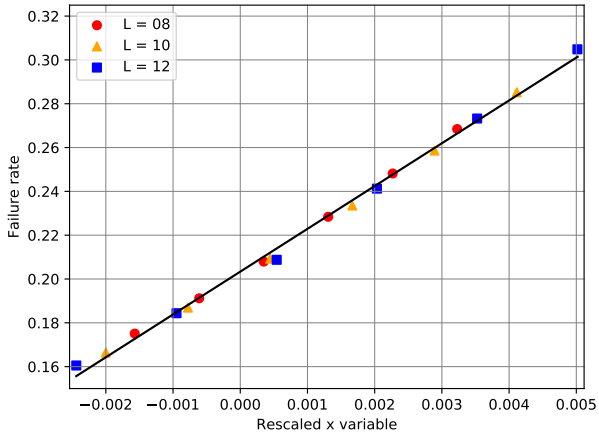
mco

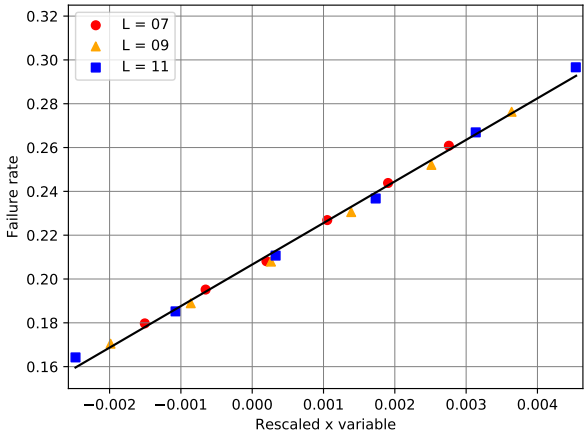
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

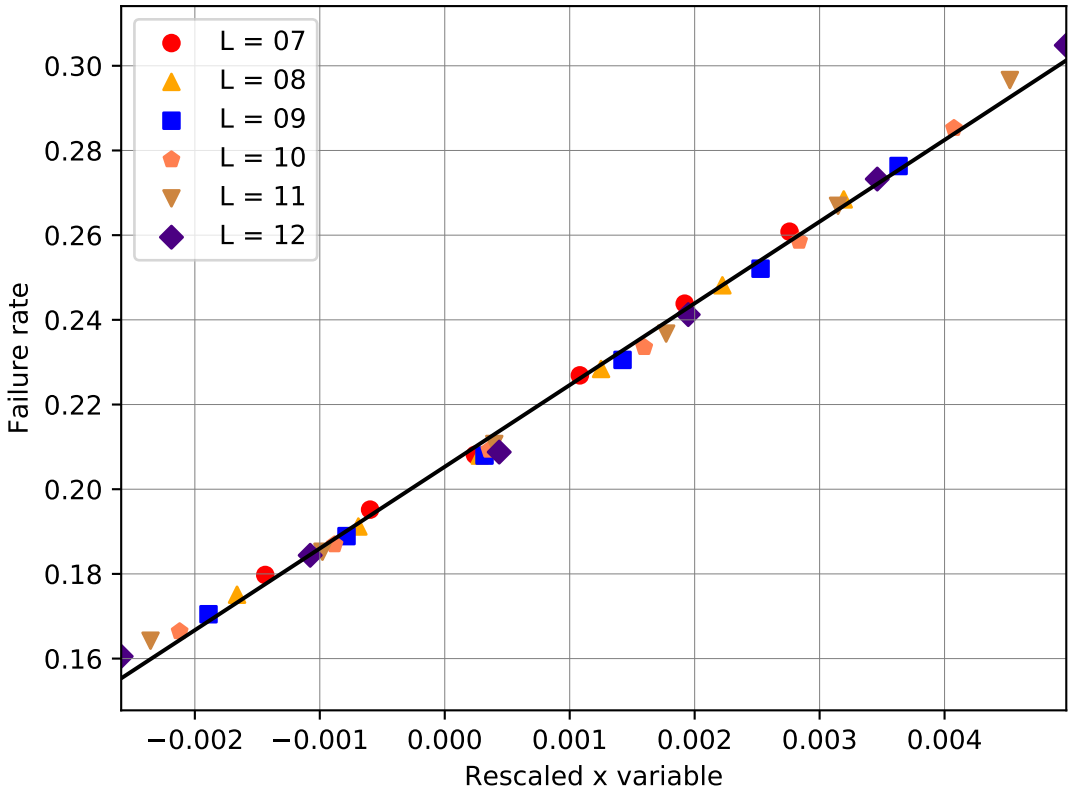




$$p_{even} = (1.096 \pm 0.003)\%$$

$$p_{odd} = (1.098 \pm 0.003)\%$$

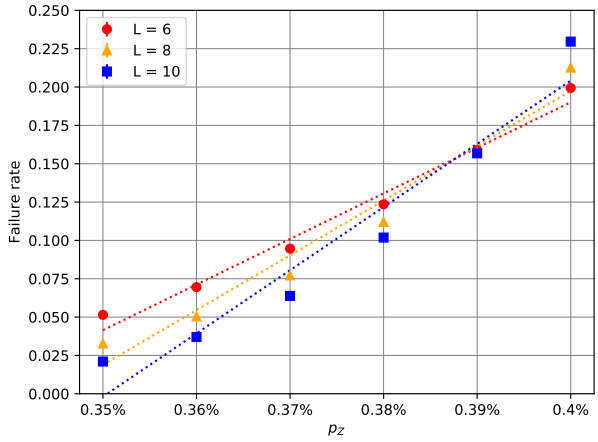
Unified fit:

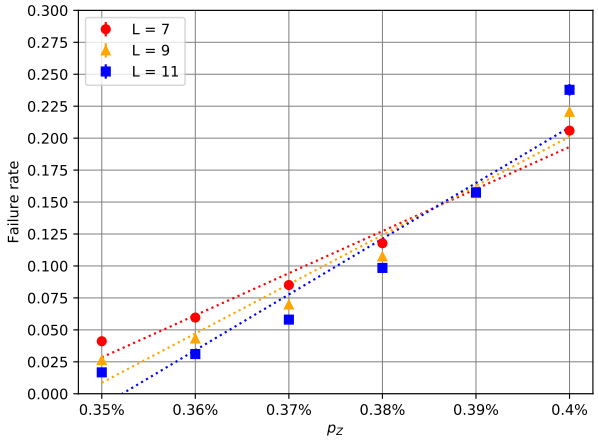


$$p_{th} = (1.097 \pm 0.002)\%$$

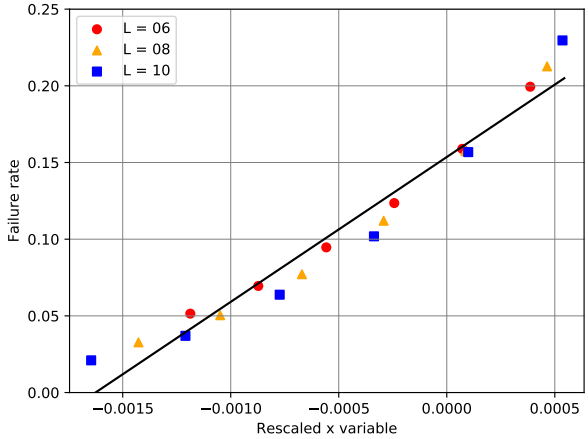
mgc

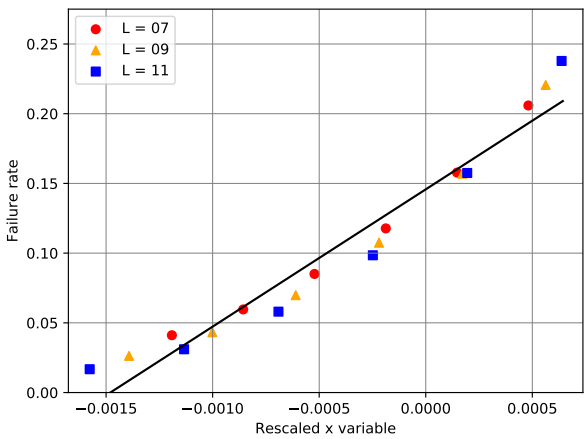
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

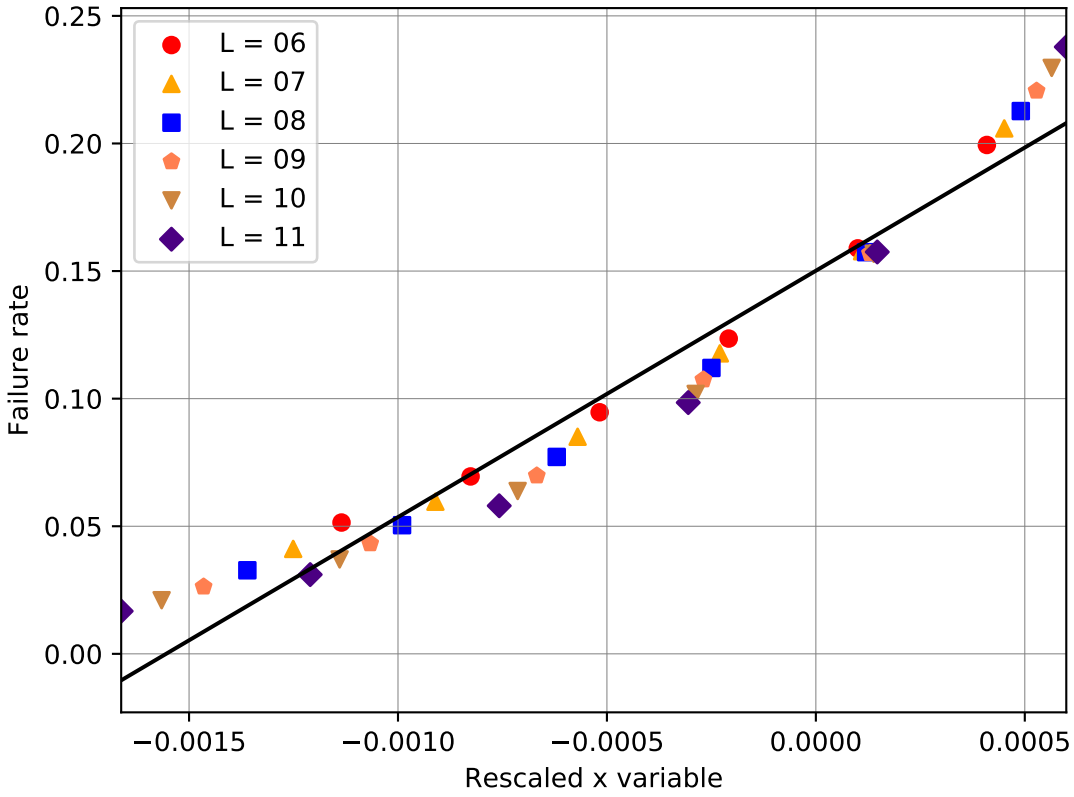




$$p_{even} = (0.388 \pm 0.018)\%$$

$$p_{odd} = (0.386 \pm 0.022)\%$$

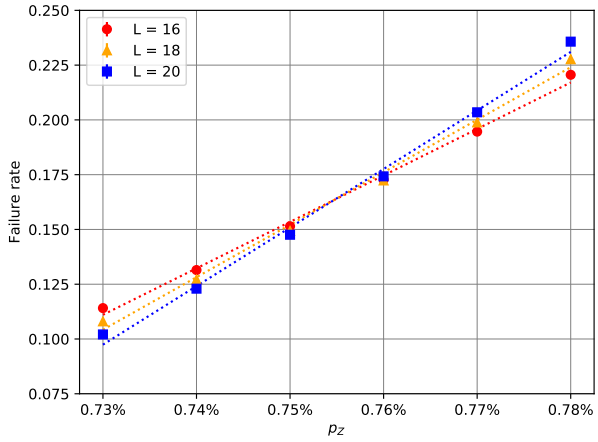
Unified fit:

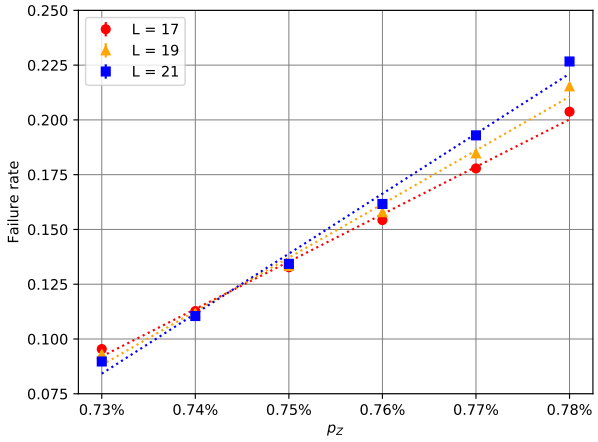


$$p_{th} = (0.387 \pm 0.013)\%$$

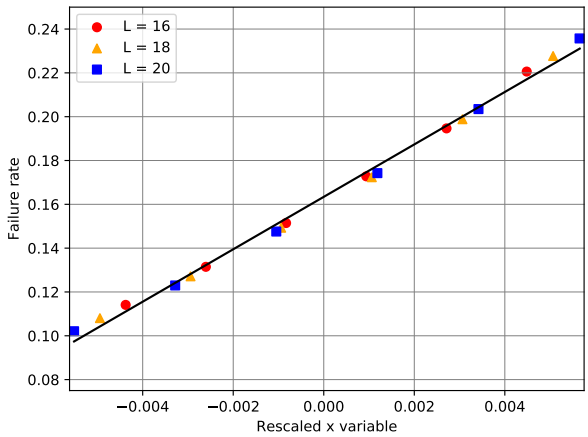
pcu

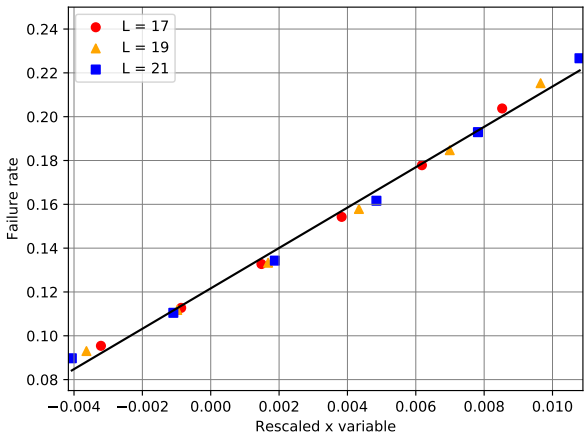
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

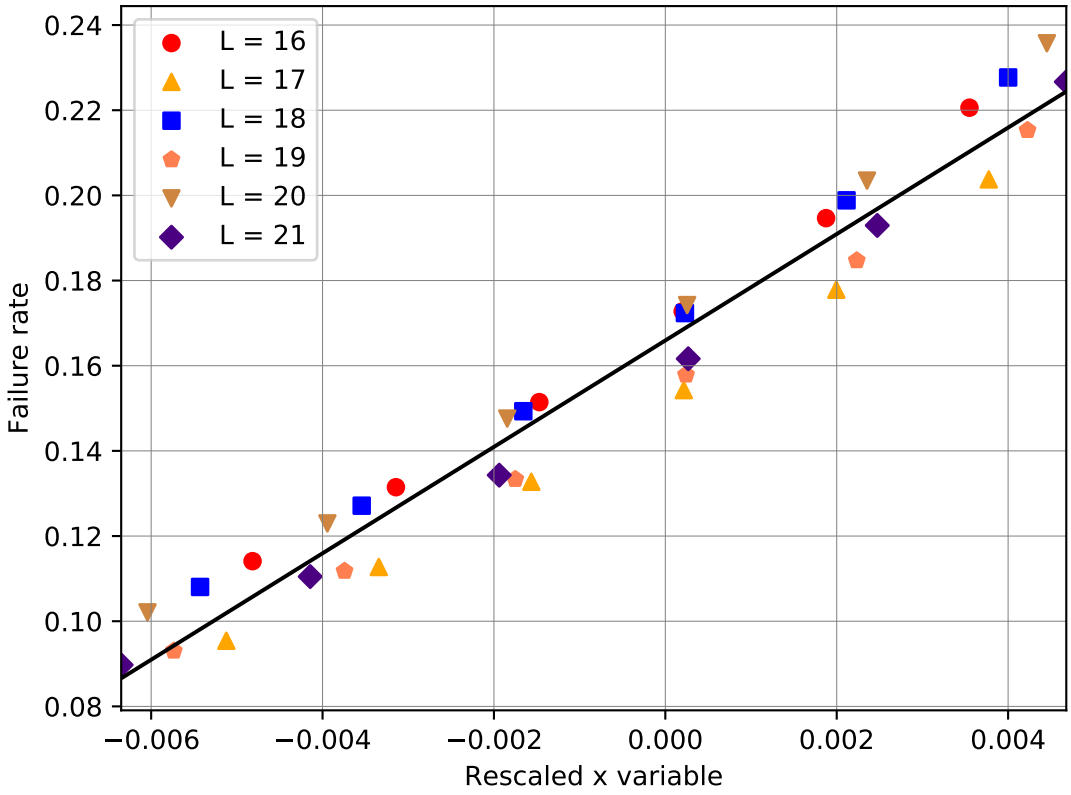




$$p_{even} = (0.755 \pm 0.007)\%$$

$$p_{odd} = (0.744 \pm 0.01)\%$$

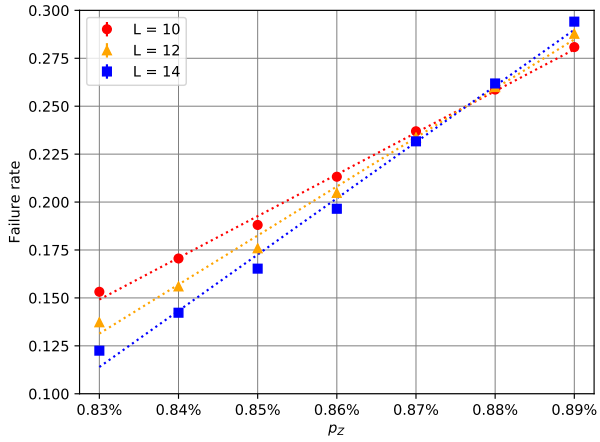
Unified fit:

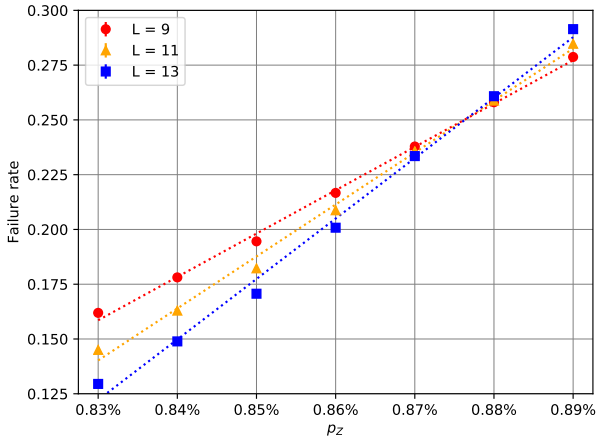


$$p_{th} = (0.759 \pm 0.013)\%$$

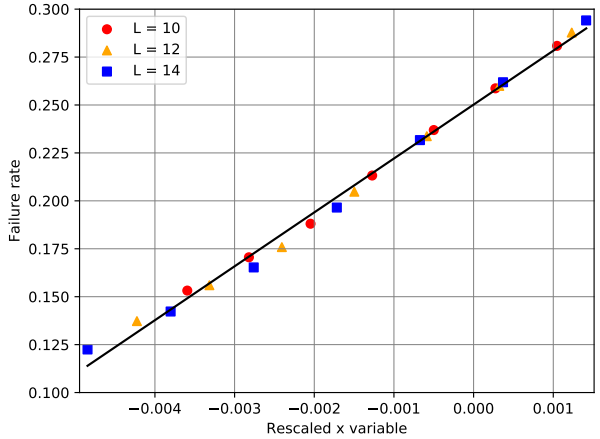
pte

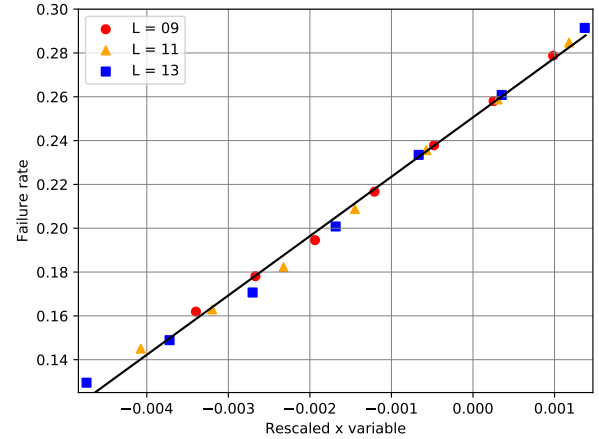
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

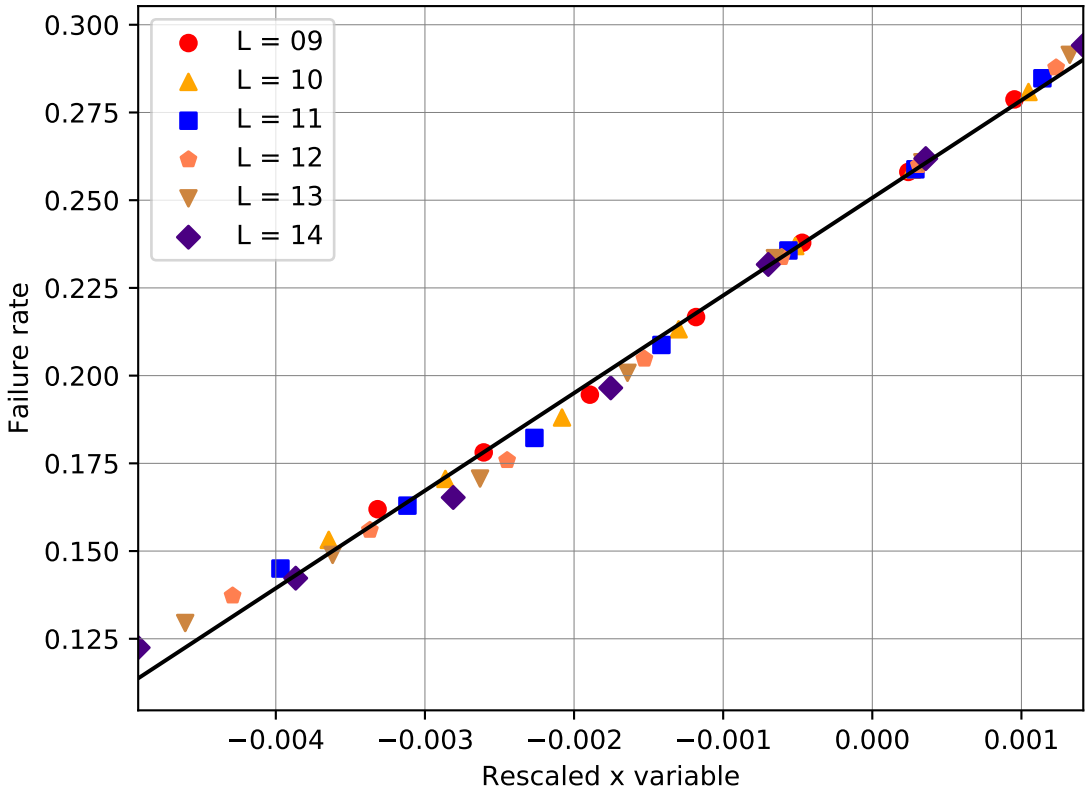




$$p_{even} = (0.876 \pm 0.008)\%$$

$$p_{odd} = (0.877 \pm 0.006)\%$$

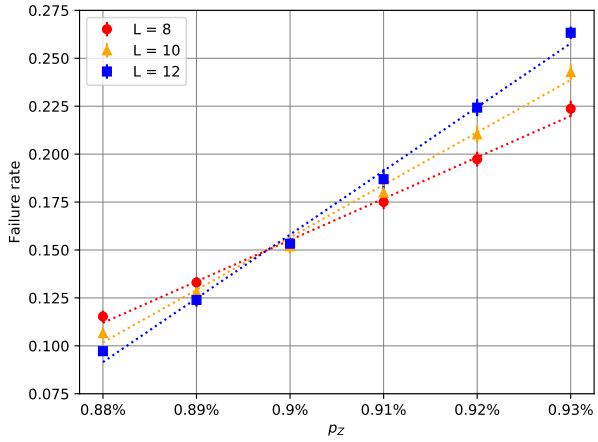
Unified fit:

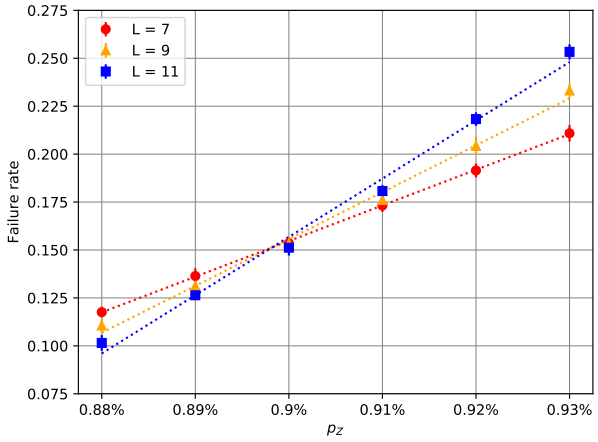


$$p_{th} = (0.877 \pm 0.005)\%$$

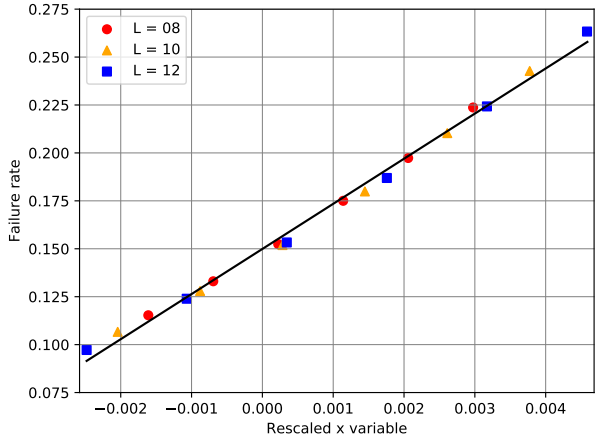
pyr

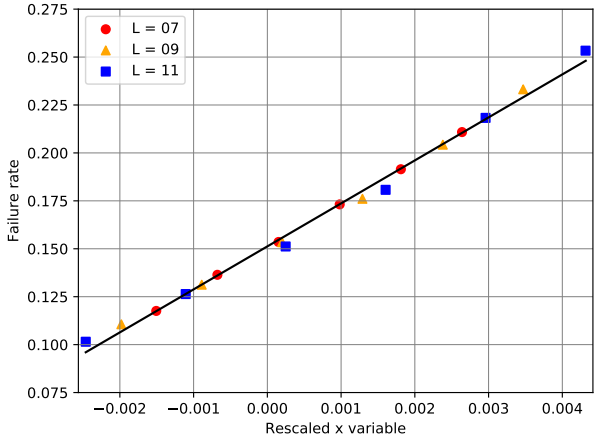
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

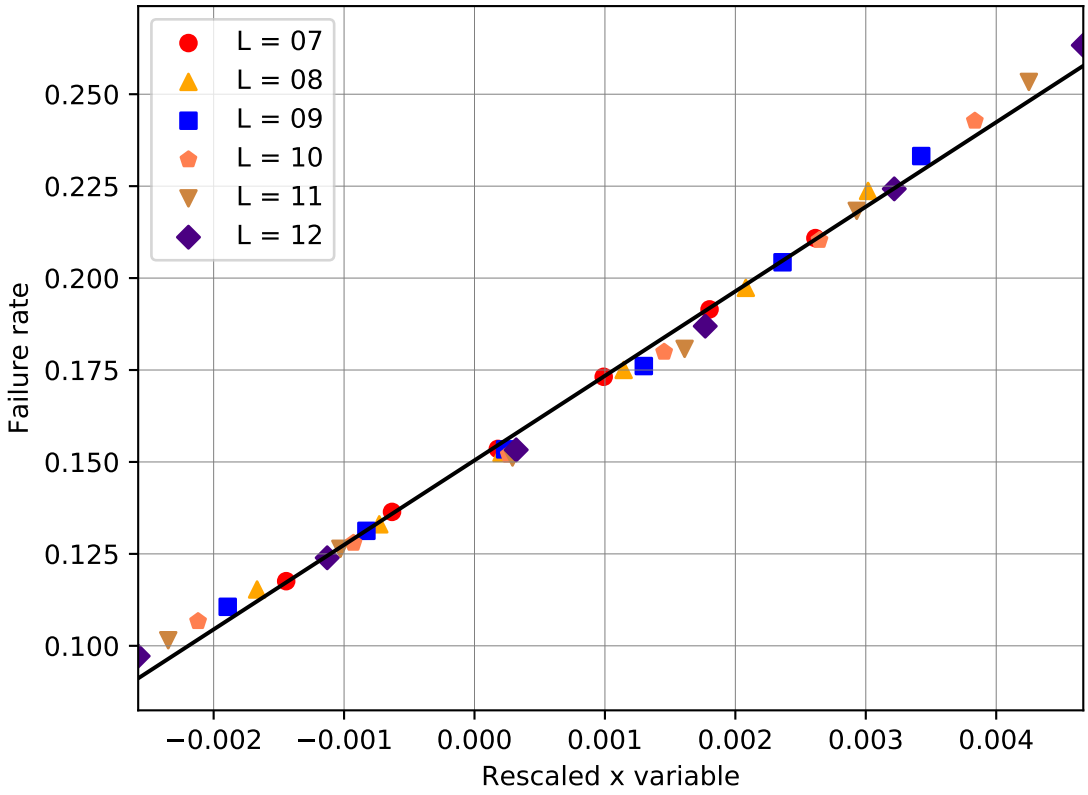




$$p_{even} = (0.898 \pm 0.004)\%$$

$$p_{odd} = (0.898 \pm 0.004)\%$$

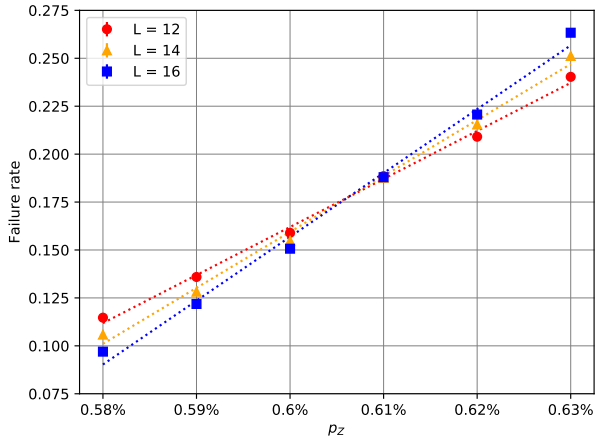
Unified fit:

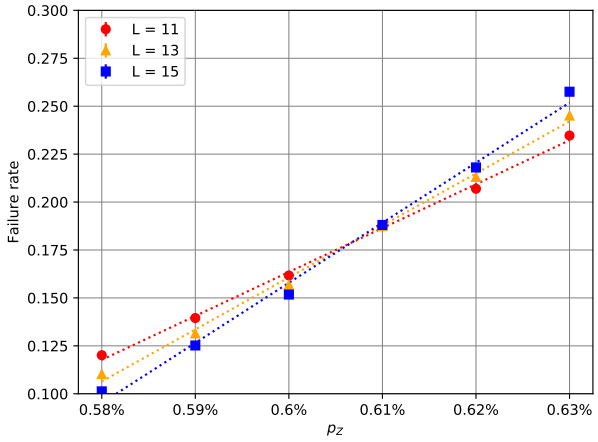


$$p_{th} = (0.898 \pm 0.003)\%$$

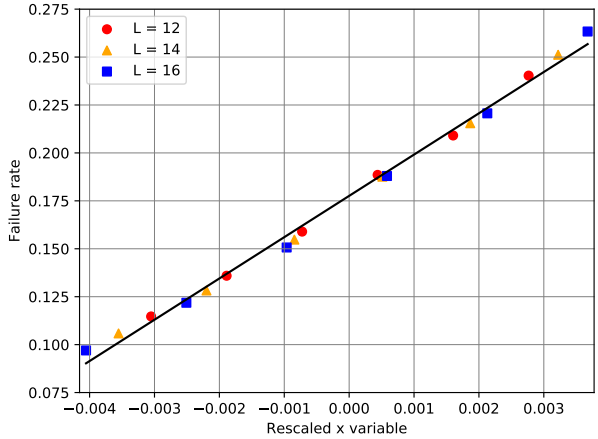
qtz-x

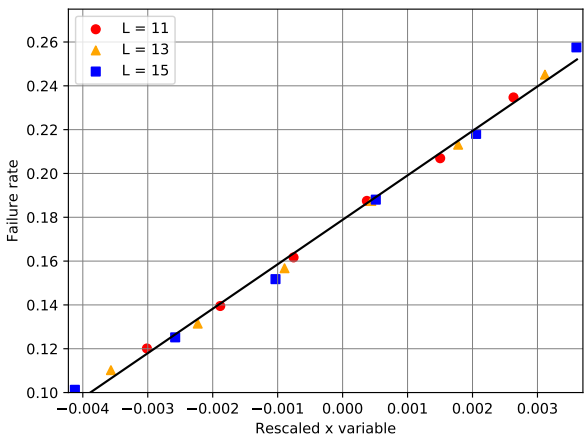
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

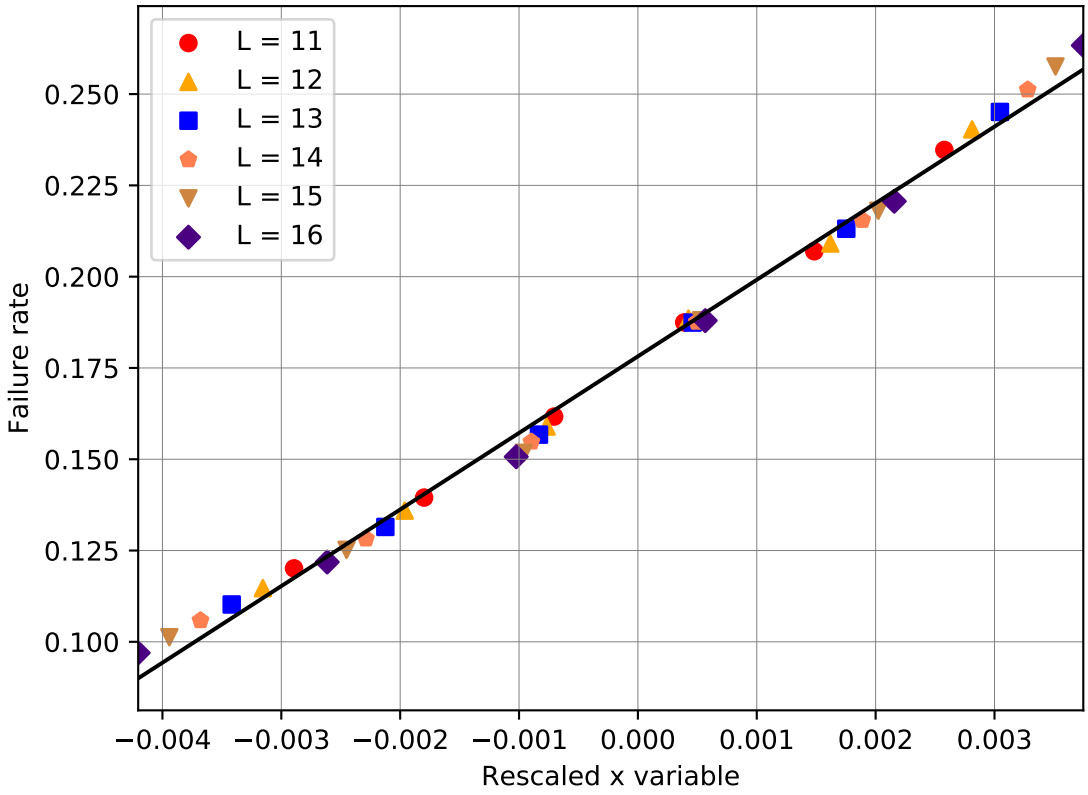




$$p_{even} = (0.606 \pm 0.006)\%$$

$$p_{odd} = (0.607 \pm 0.005)\%$$

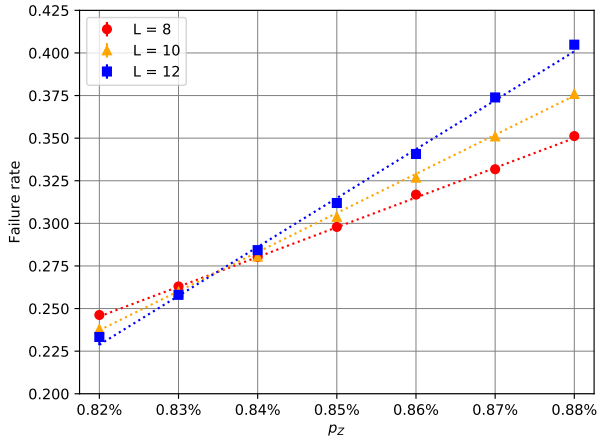
Unified fit:

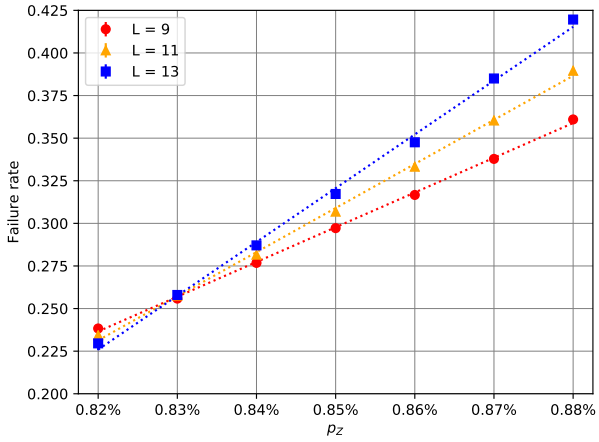


$$p_{th} = (0.606 \pm 0.003)\%$$

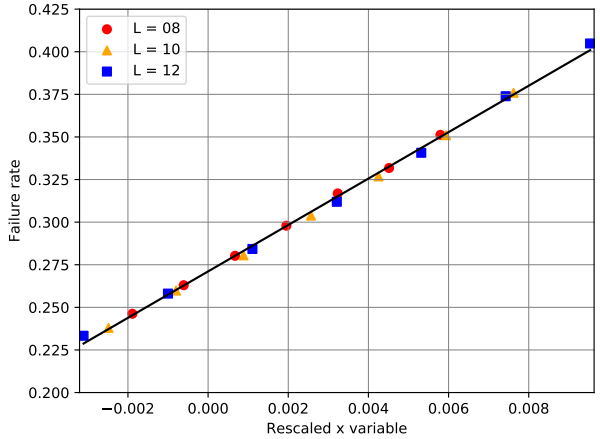
rtw

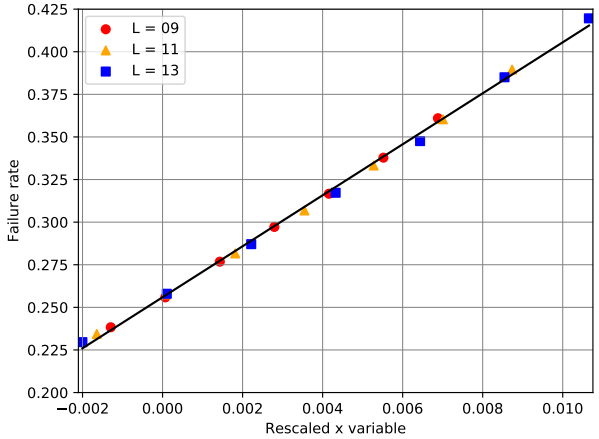
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

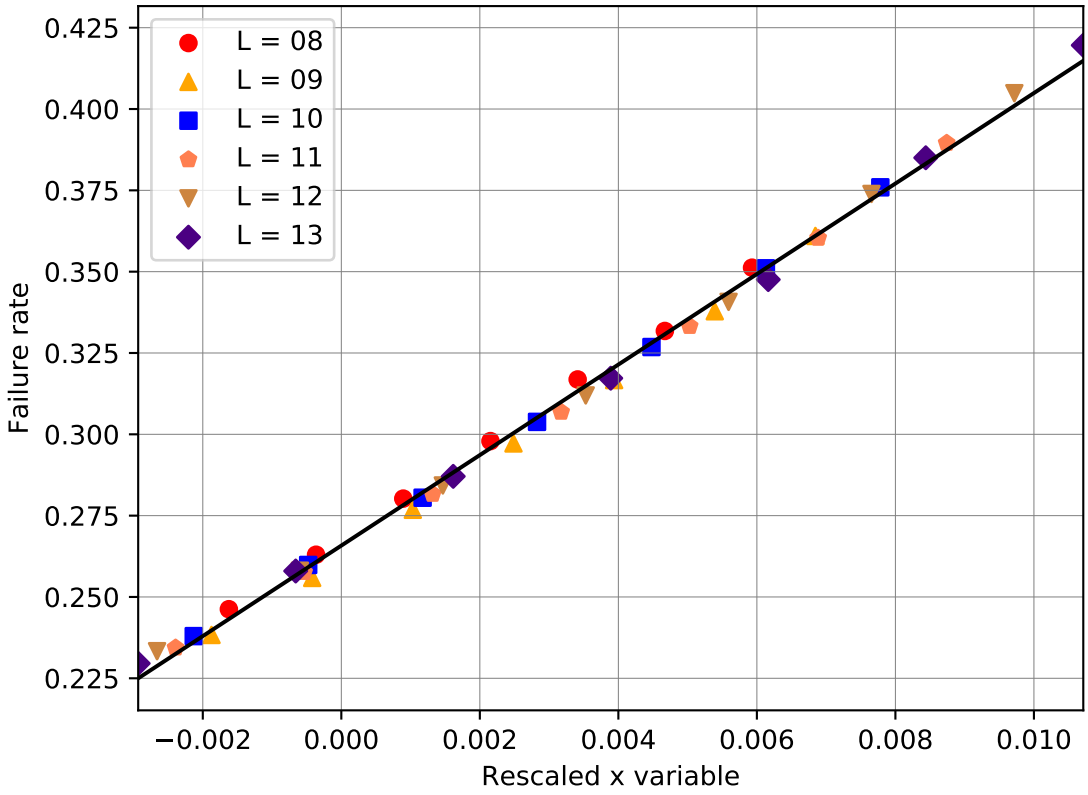




$$p_{even} = (0.835 \pm 0.003)\%$$

$$p_{odd} = (0.829 \pm 0.003)\%$$

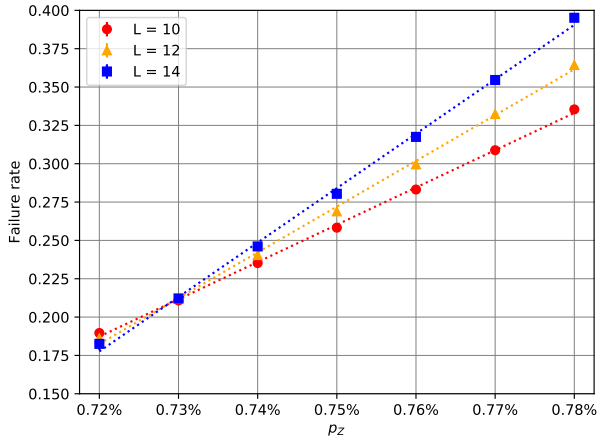
Unified fit:

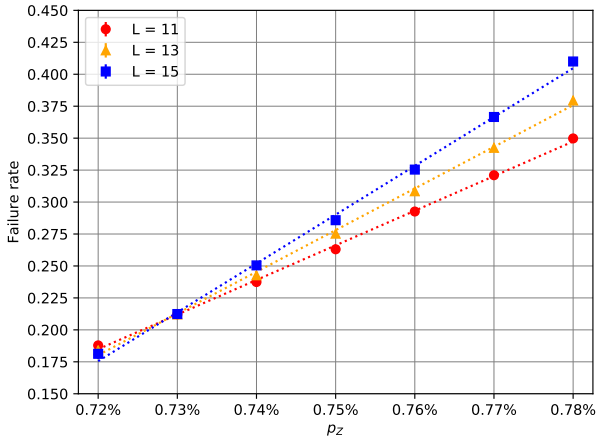


$$p_{th} = (0.833 \pm 0.002)\%$$

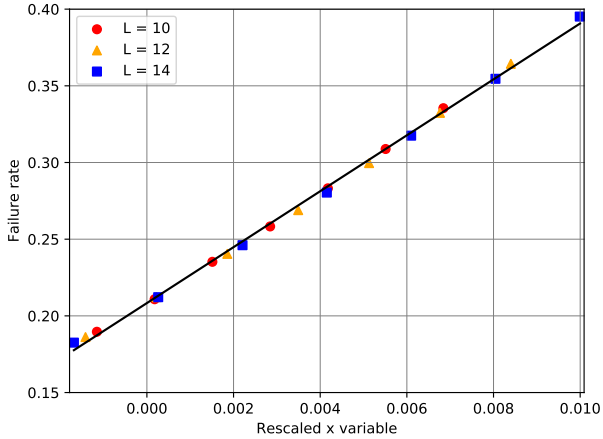
sda

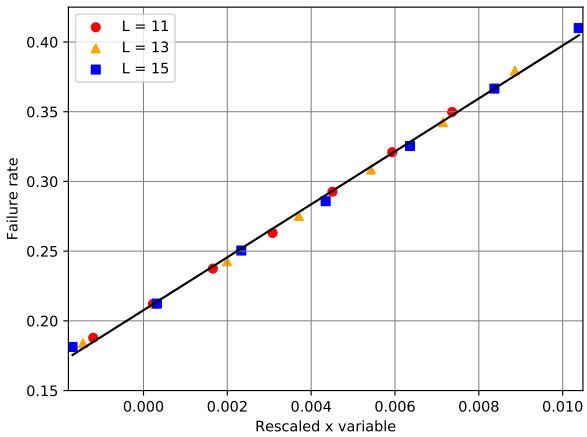
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

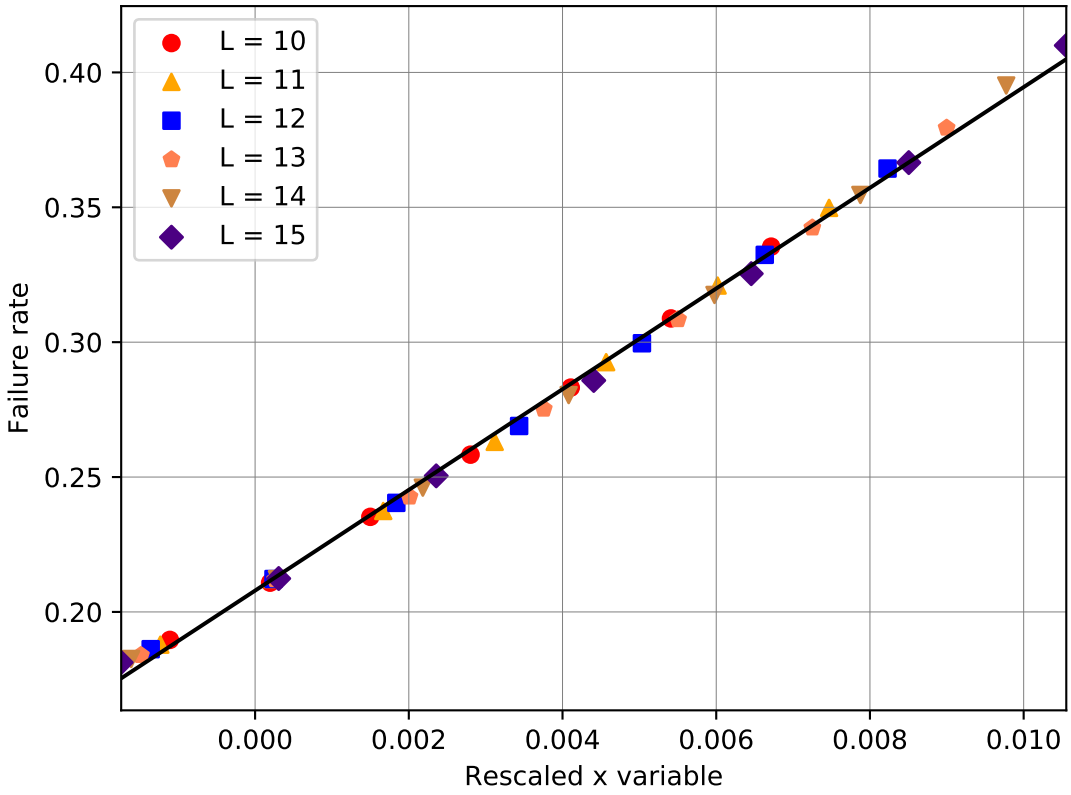




$$p_{even} = (0.729 \pm 0.004)\%$$

$$p_{odd} = (0.728 \pm 0.004)\%$$

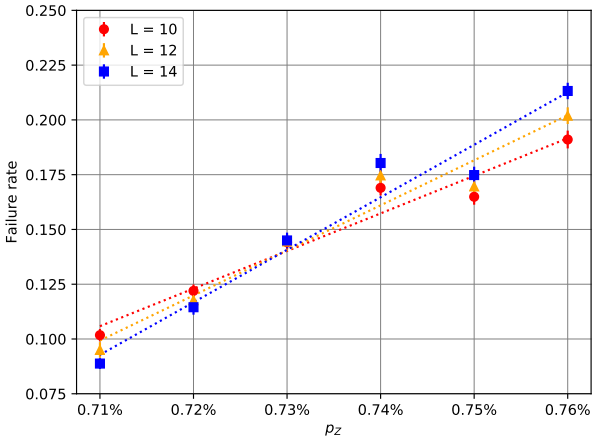
Unified fit:

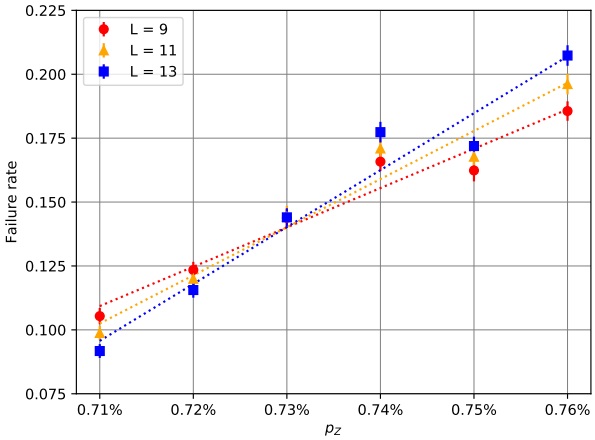


$$p_{th} = (0.729 \pm 0.003)\%$$

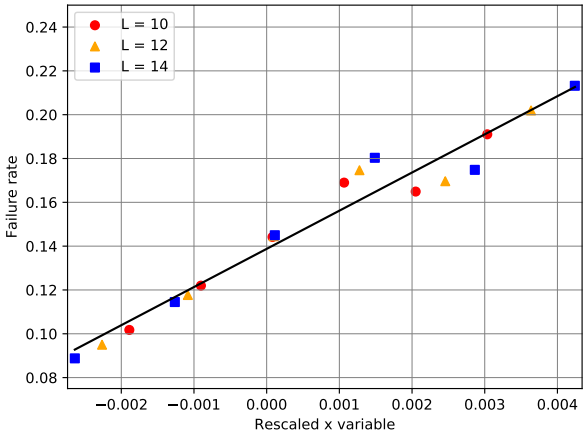
smt

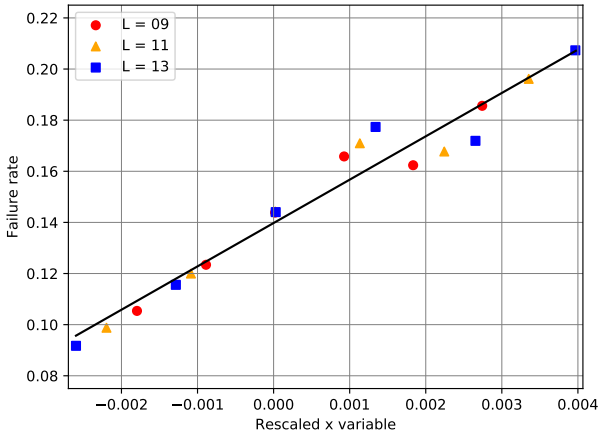
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

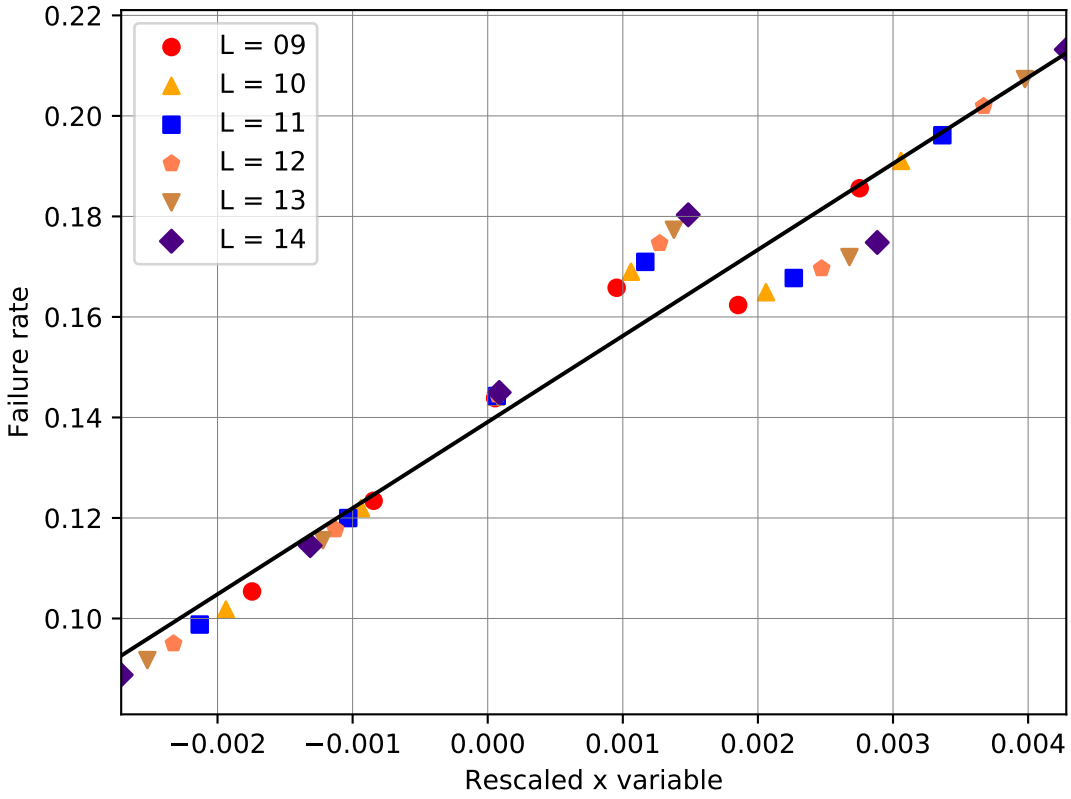




$$p_{even} = (0.729 \pm 0.016)\%$$

$$p_{odd} = (0.73 \pm 0.014)\%$$

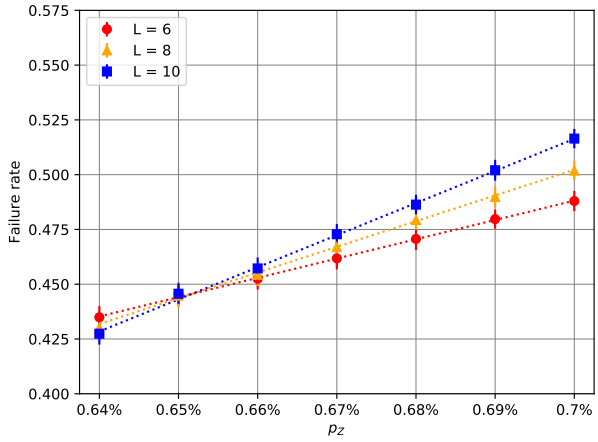
Unified fit:

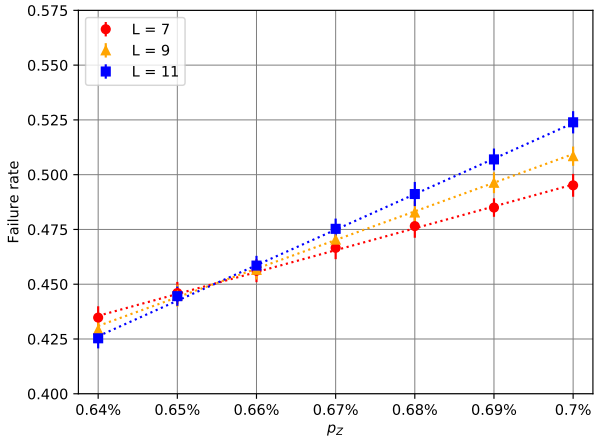


$$p_{th} = (0.729 \pm 0.01)\%$$

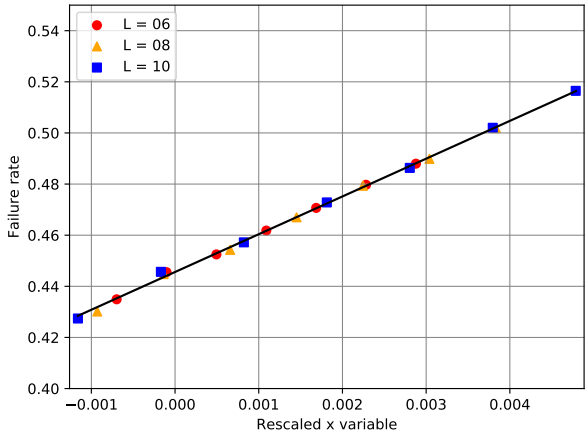
swl

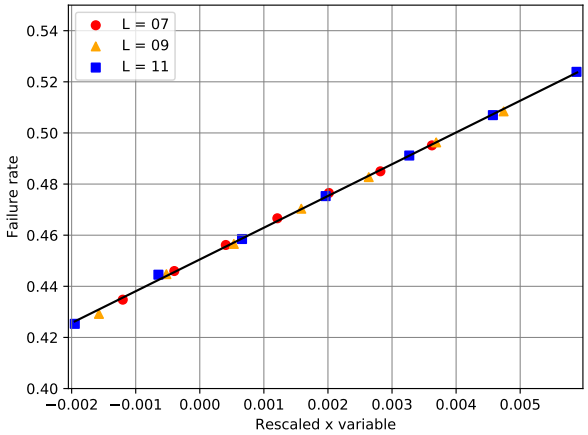
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

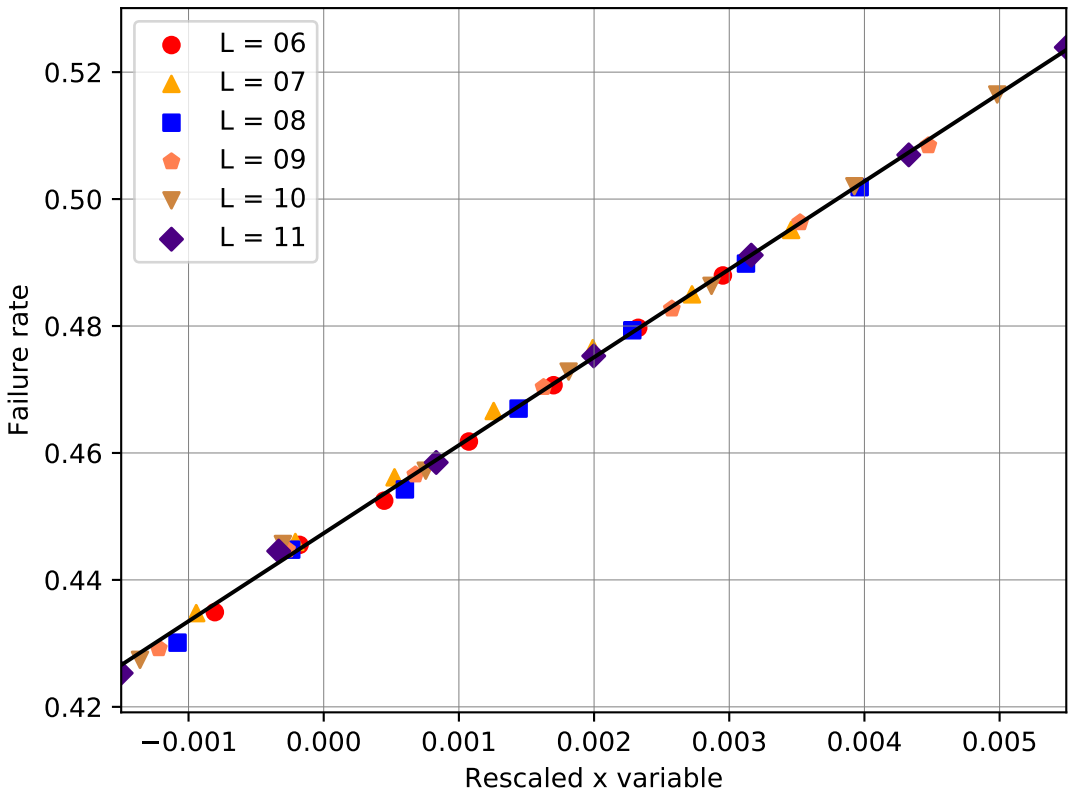




$$p_{even} = (0.652 \pm 0.003)\%$$

$$p_{odd} = (0.655 \pm 0.002)\%$$

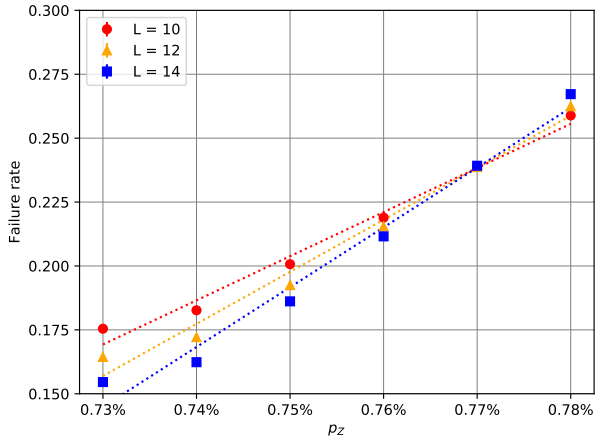
Unified fit:

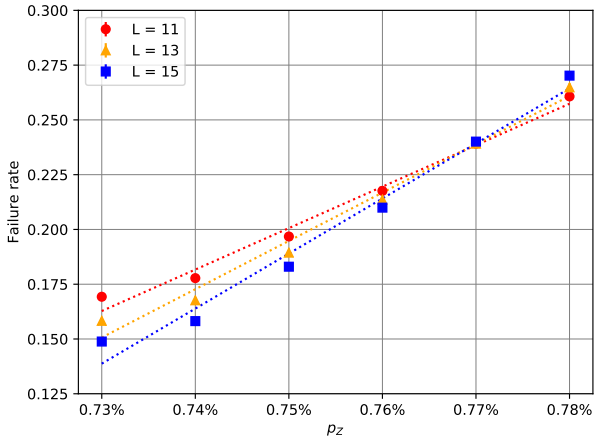


$$p_{th} = (0.653 \pm 0.002)\%$$

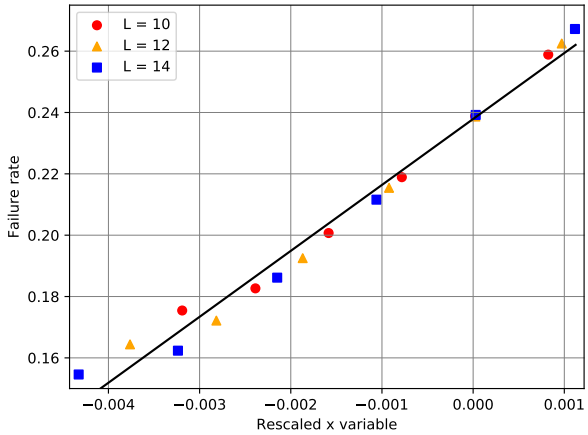
sxd

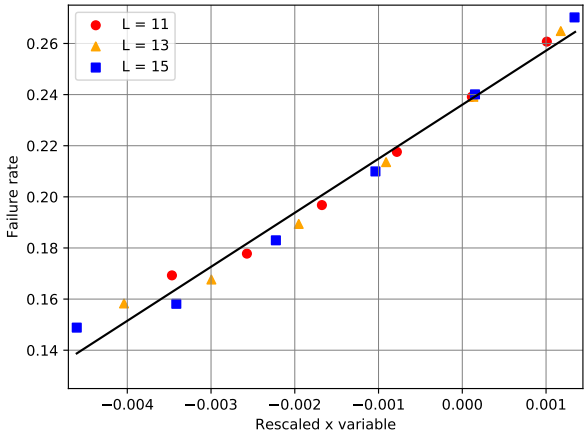
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

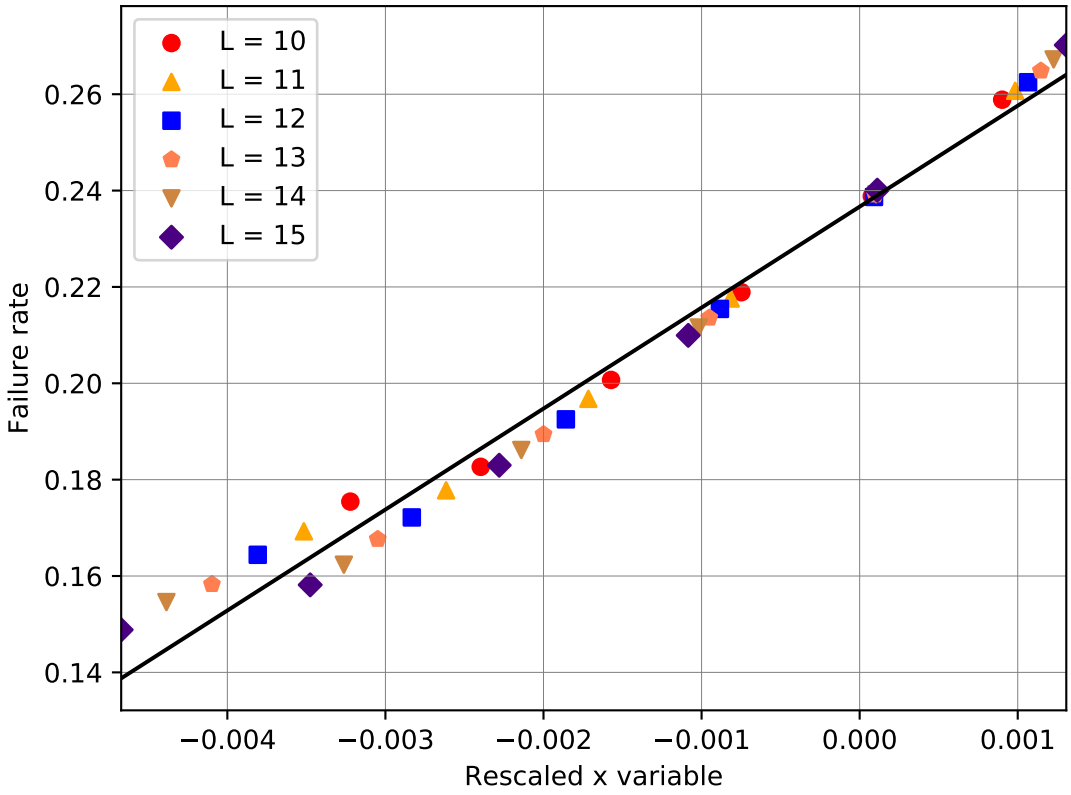




$$p_{even} = (0.77 \pm 0.013)\%$$

$$p_{odd} = (0.769 \pm 0.014)\%$$

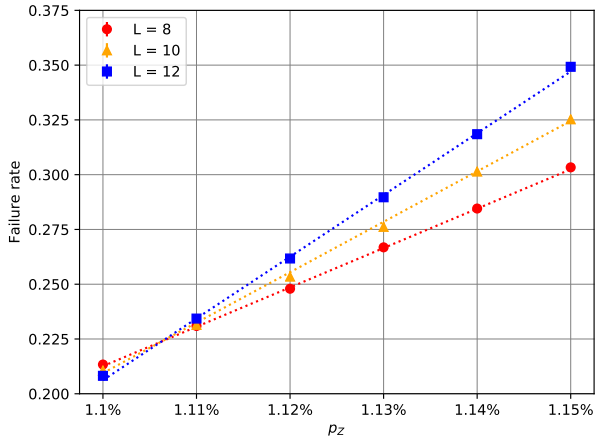
Unified fit:

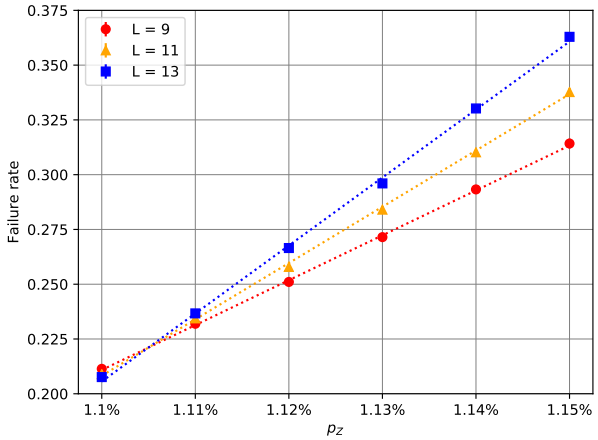


$$p_{th} = (0.769 \pm 0.008)\%$$

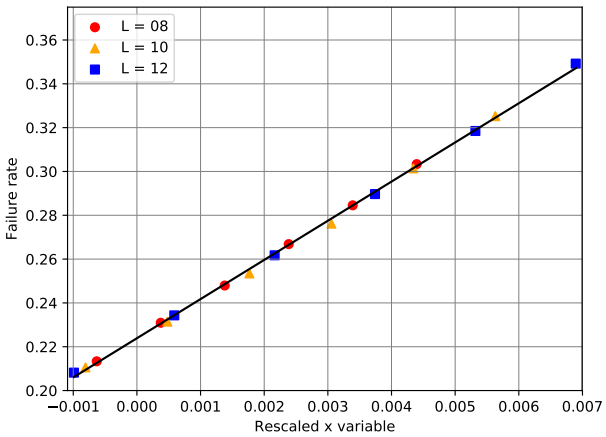
tfa

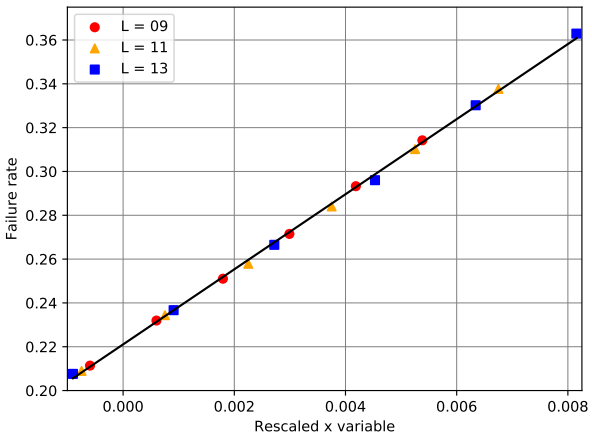
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

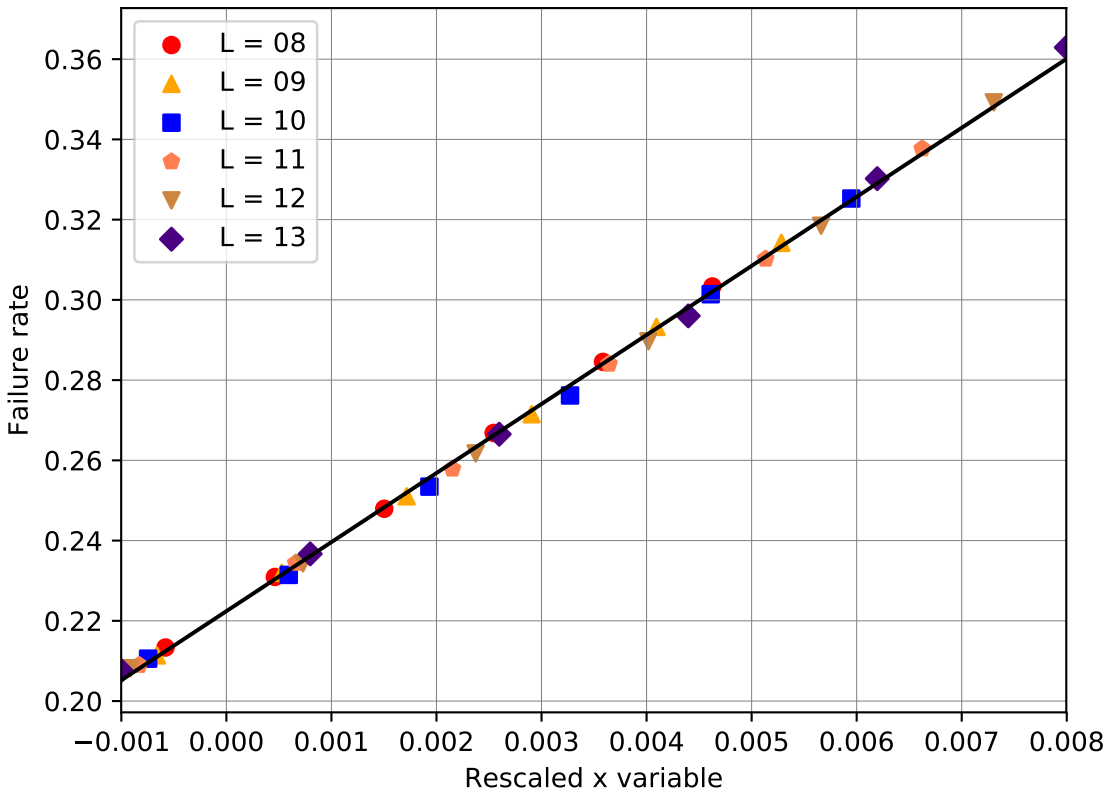




$$p_{even} = (1.106 \pm 0.002)\%$$

$$p_{odd} = (1.105 \pm 0.002)\%$$

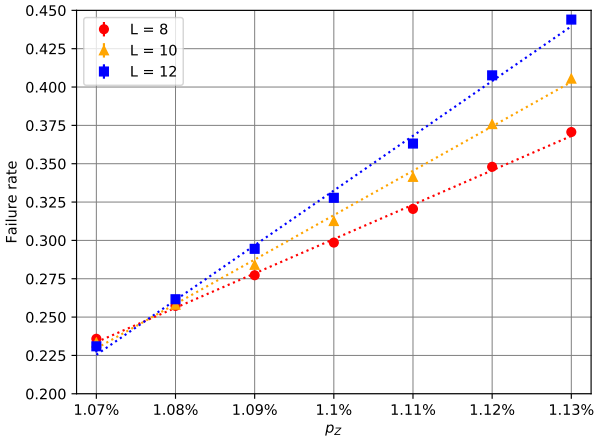
Unified fit:

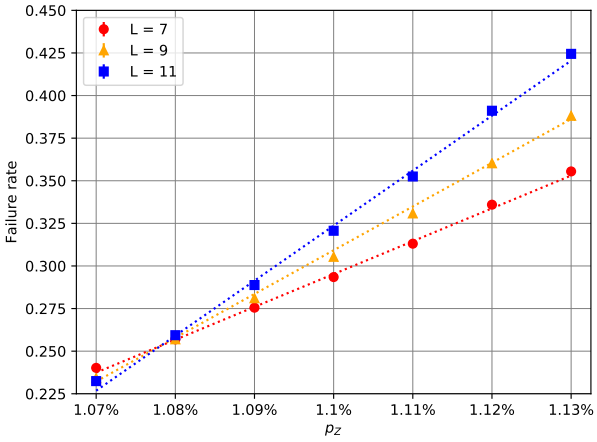


$$p_{th} = (1.106 \pm 0.002)\%$$

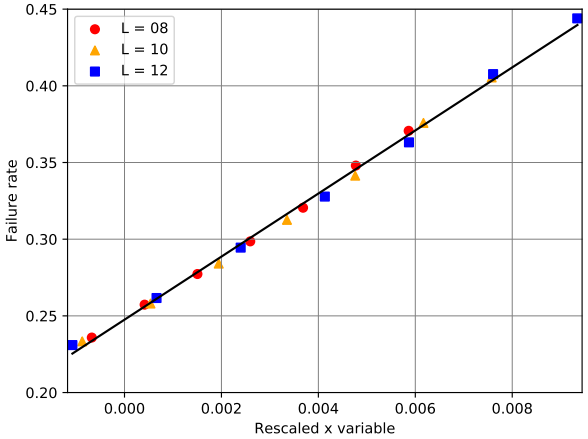
ths

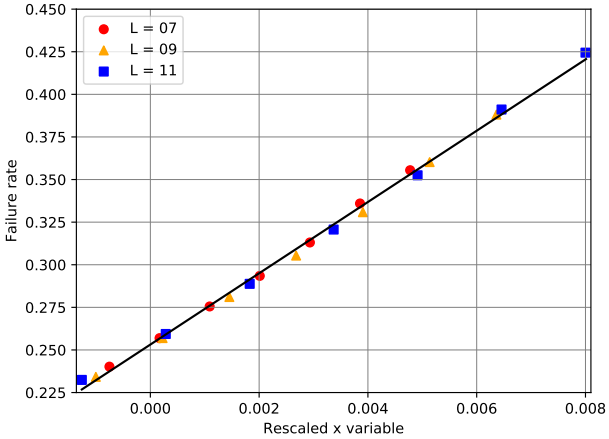
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

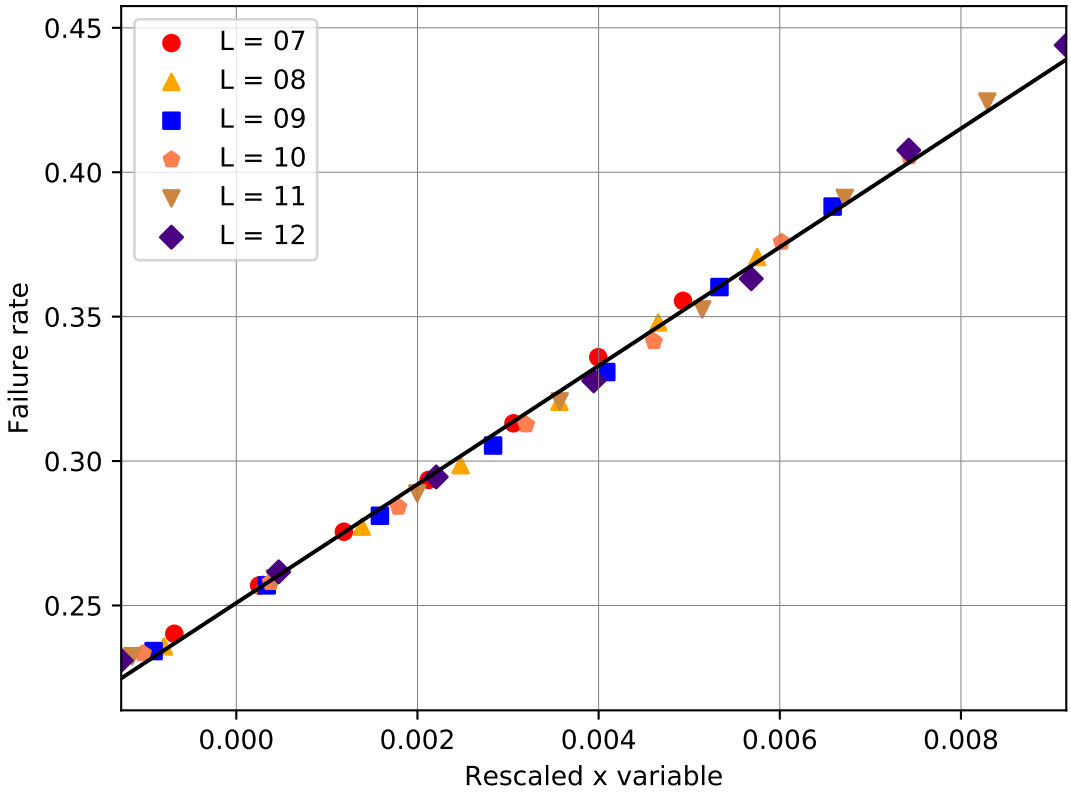




$$p_{even} = (1.076 \pm 0.004)\%$$

$$p_{odd} = (1.078 \pm 0.004)\%$$

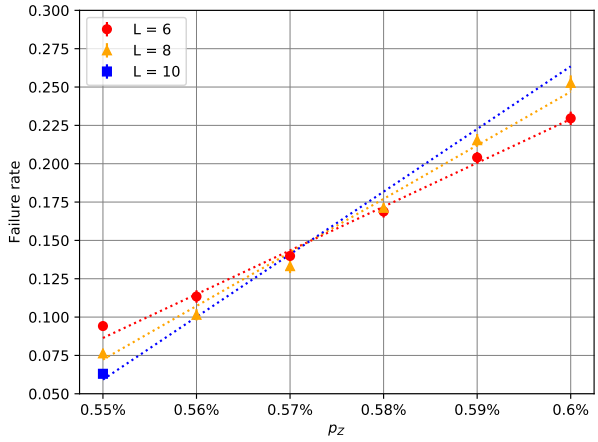
Unified fit:

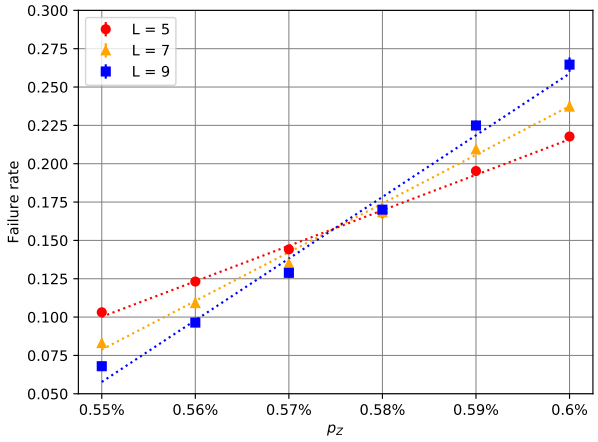


$$p_{th} = (1.077 \pm 0.003)\%$$

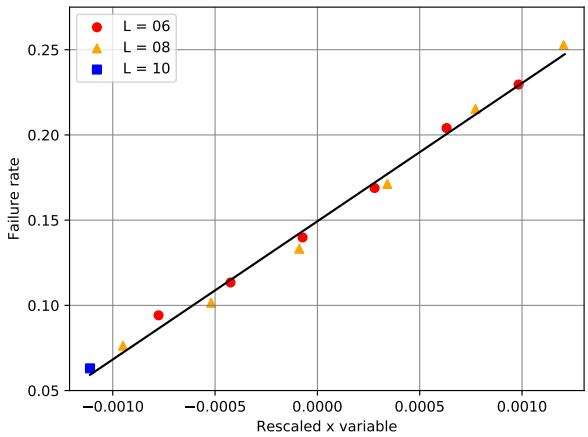
tph

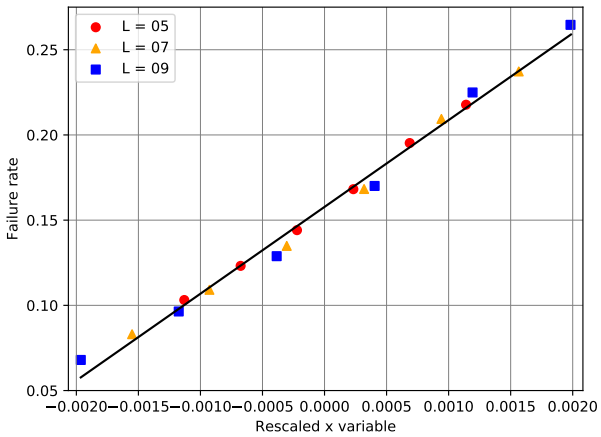
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

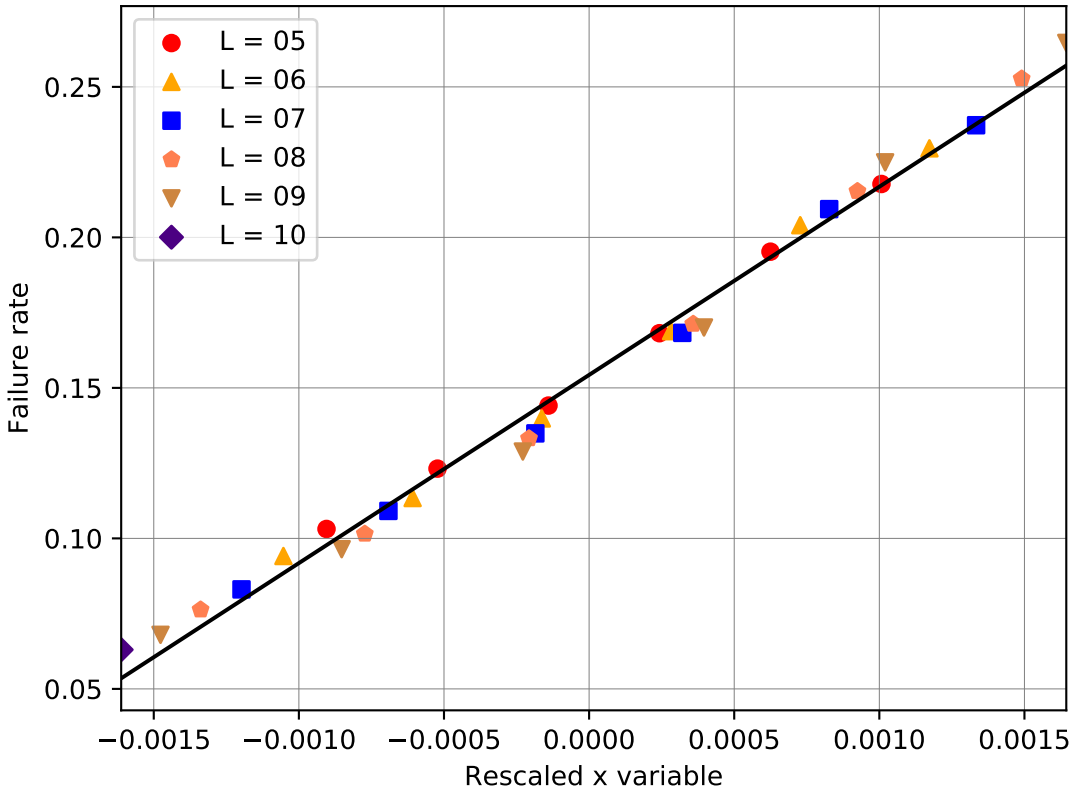




$$p_{even} = (0.572 \pm 0.009)\%$$

$$p_{odd} = (0.575 \pm 0.004)\%$$

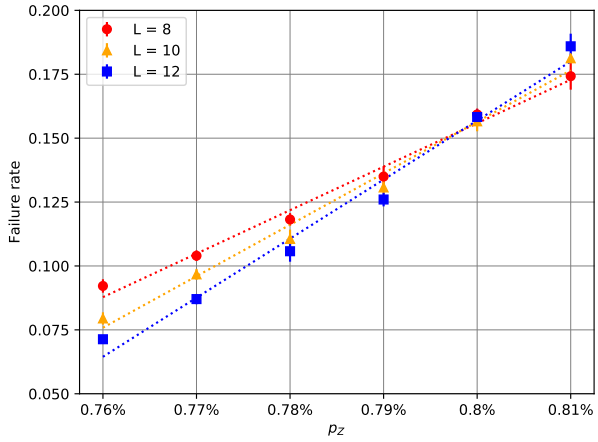
Unified fit:

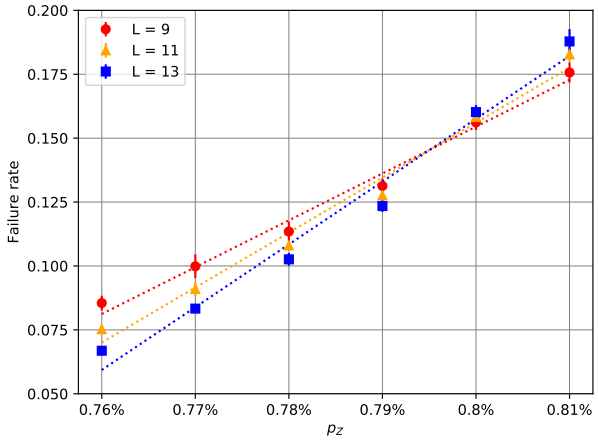


$$p_{th} = (0.574 \pm 0.004)\%$$

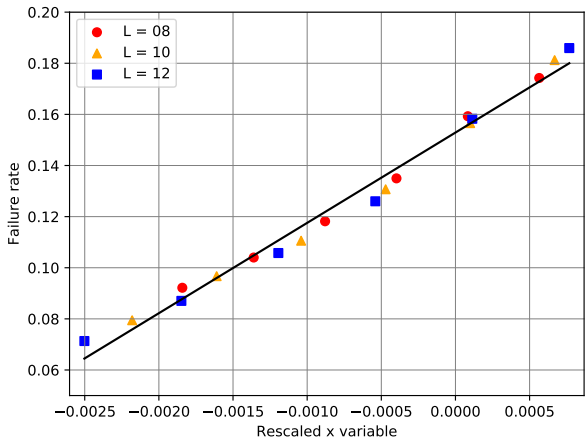
ttv

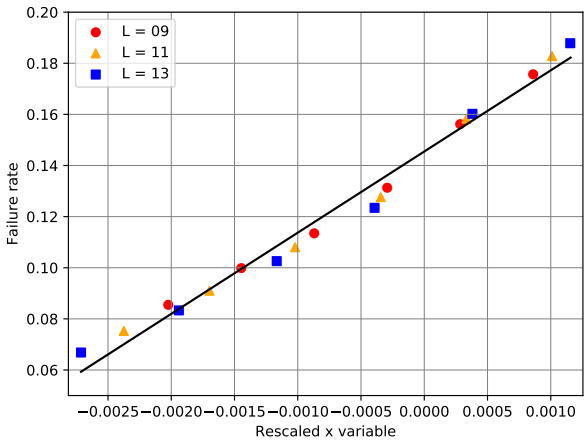
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

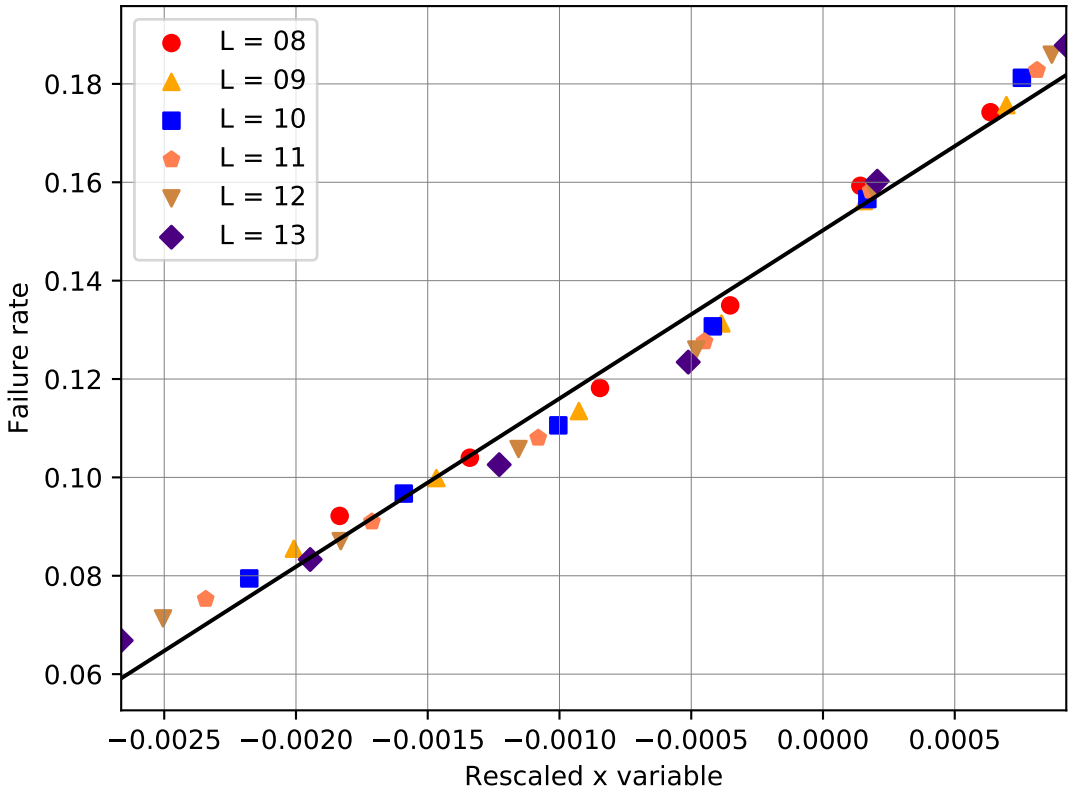




$$p_{even} = (0.798 \pm 0.012)\%$$

$$p_{odd} = (0.795 \pm 0.012)\%$$

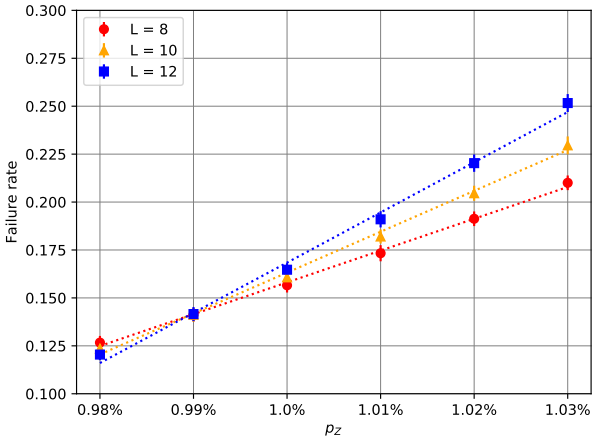
Unified fit:

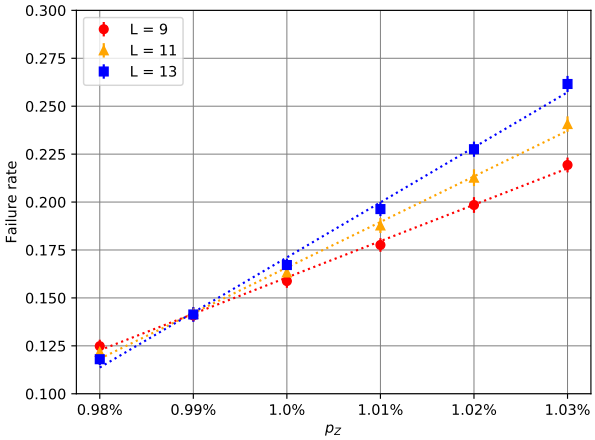


$$p_{th} = (0.797 \pm 0.008)\%$$

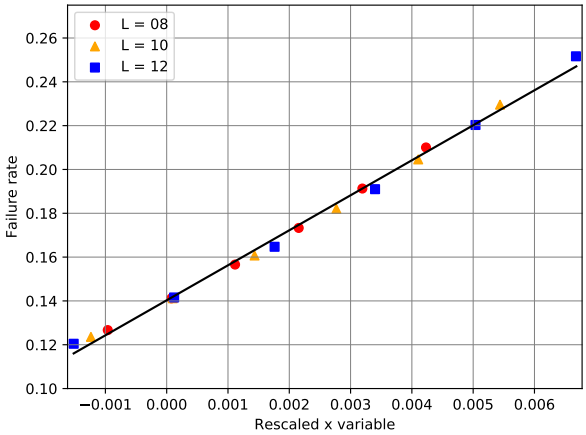
unj

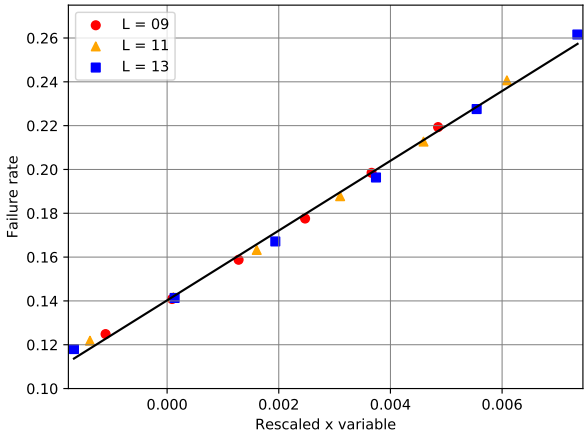
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

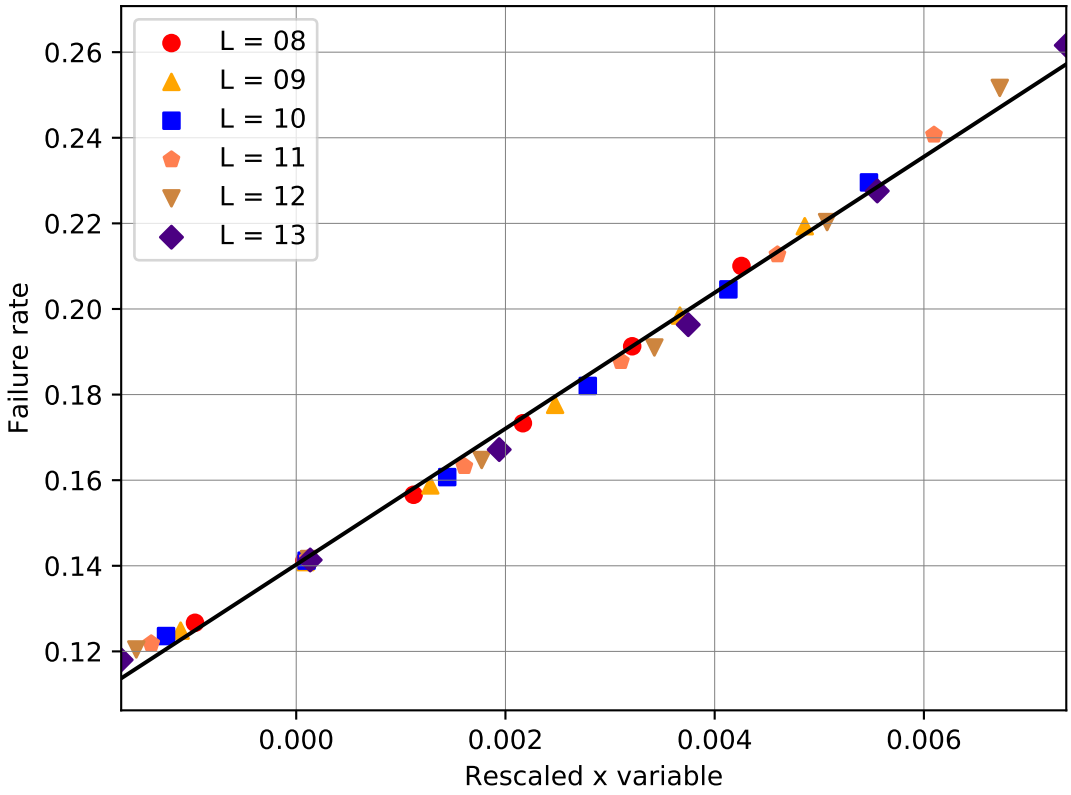




$$p_{even} = (0.989 \pm 0.005)\%$$

$$p_{odd} = (0.989 \pm 0.005)\%$$

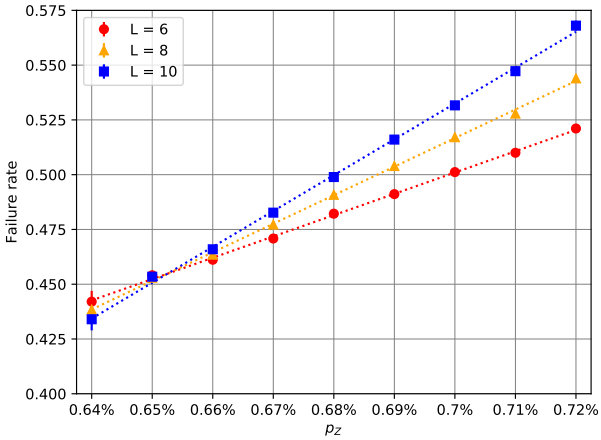
Unified fit:

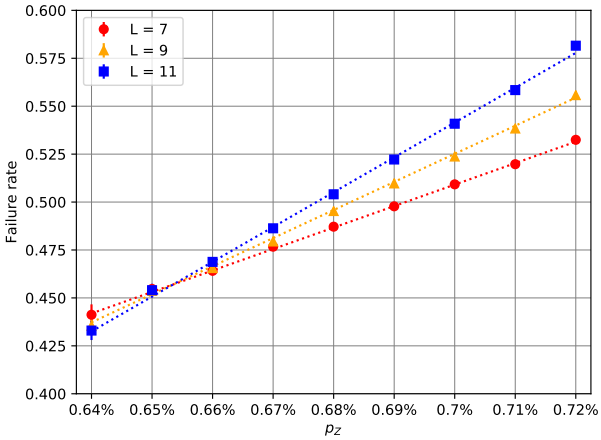


$$p_{th} = (0.989 \pm 0.003)\%$$

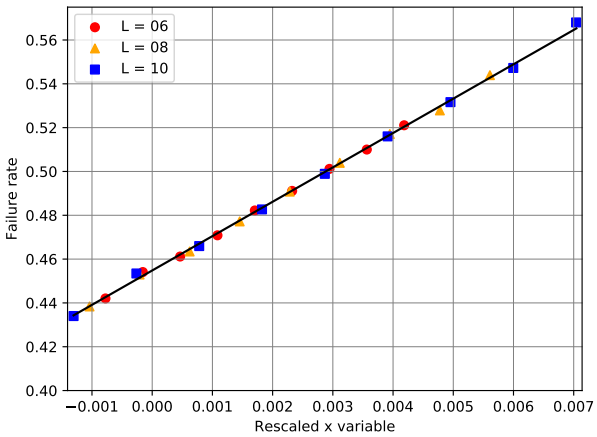
vck

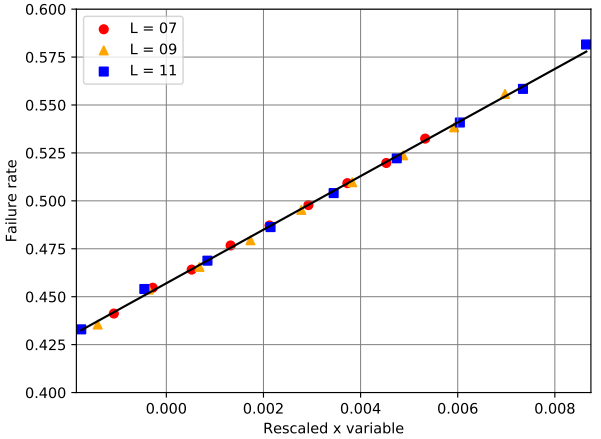
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

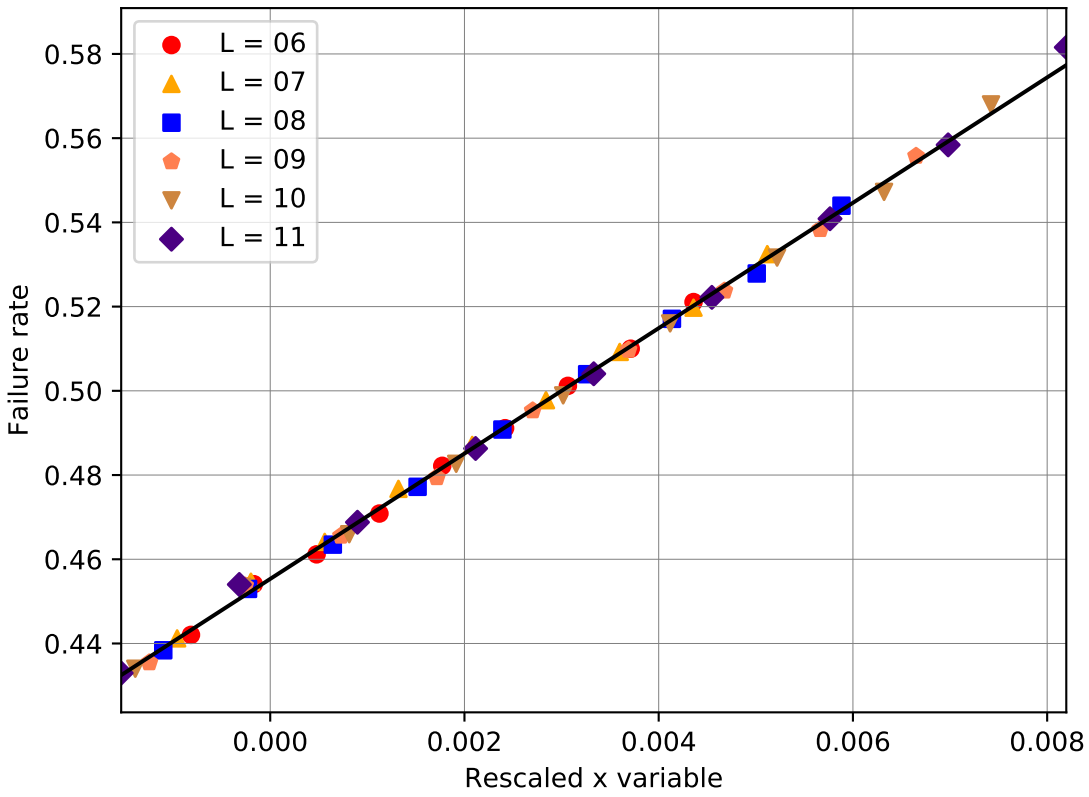




$$p_{even} = (0.653 \pm 0.003)\%$$

$$p_{odd} = (0.653 \pm 0.003)\%$$

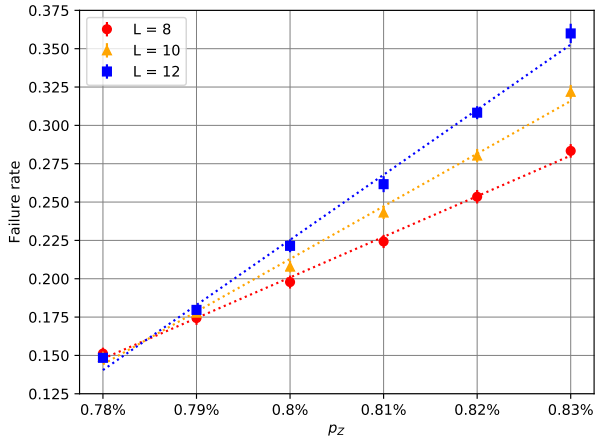
Unified fit:

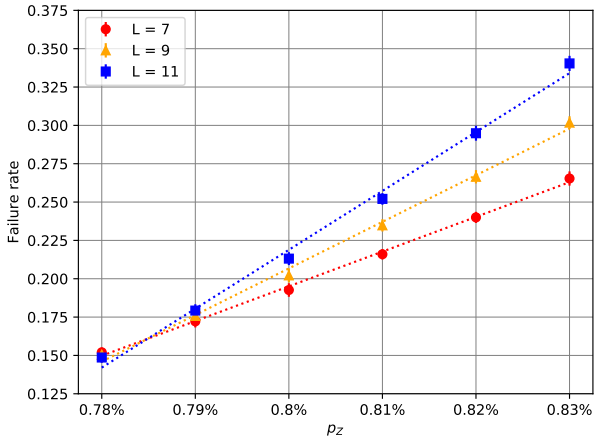


$$p_{th} = (0.653 \pm 0.002)\%$$

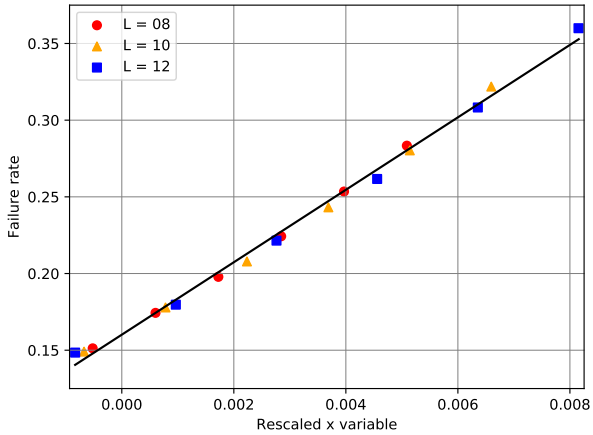
vtx

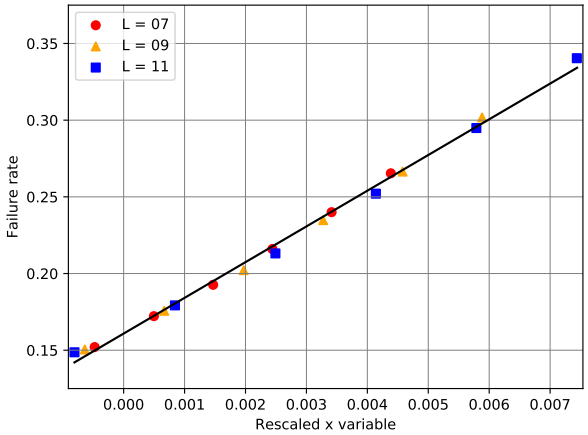
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

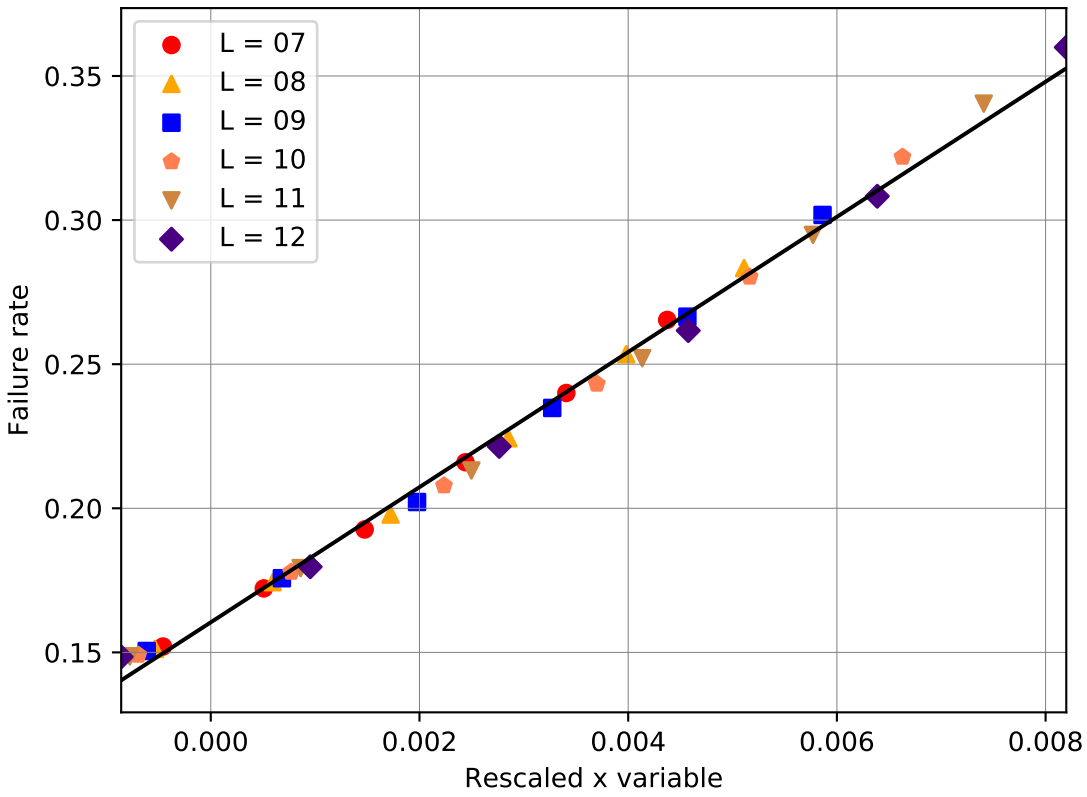




$$p_{even} = (0.785 \pm 0.005)\%$$

$$p_{odd} = (0.785 \pm 0.005)\%$$

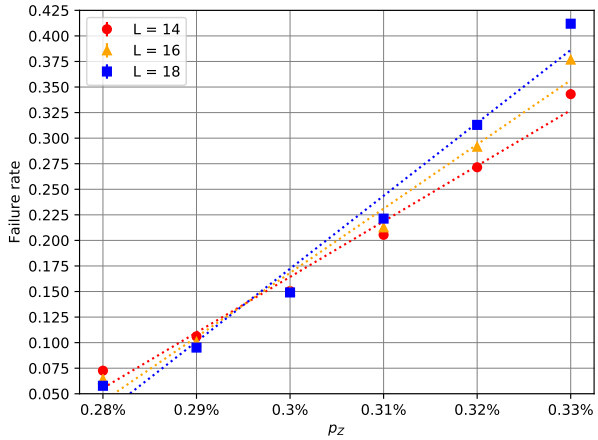
Unified fit:

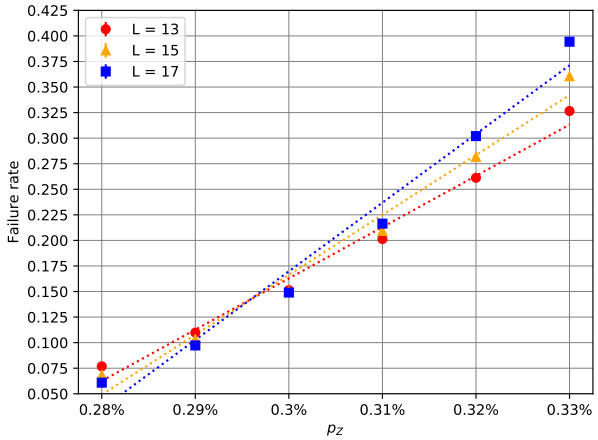


$$p_{th} = (0.785 \pm 0.003)\%$$

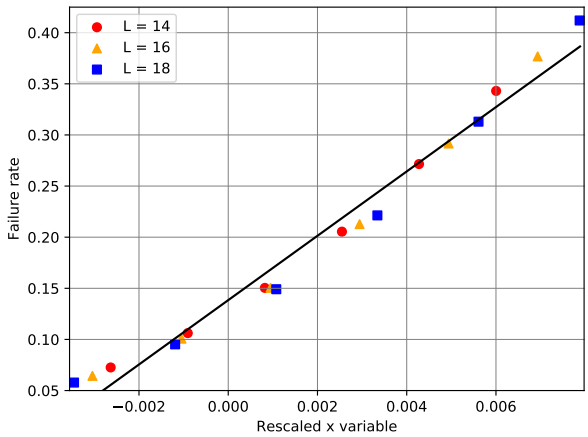
wst

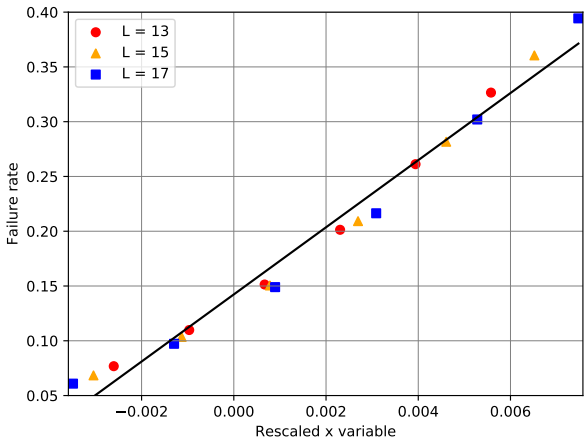
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

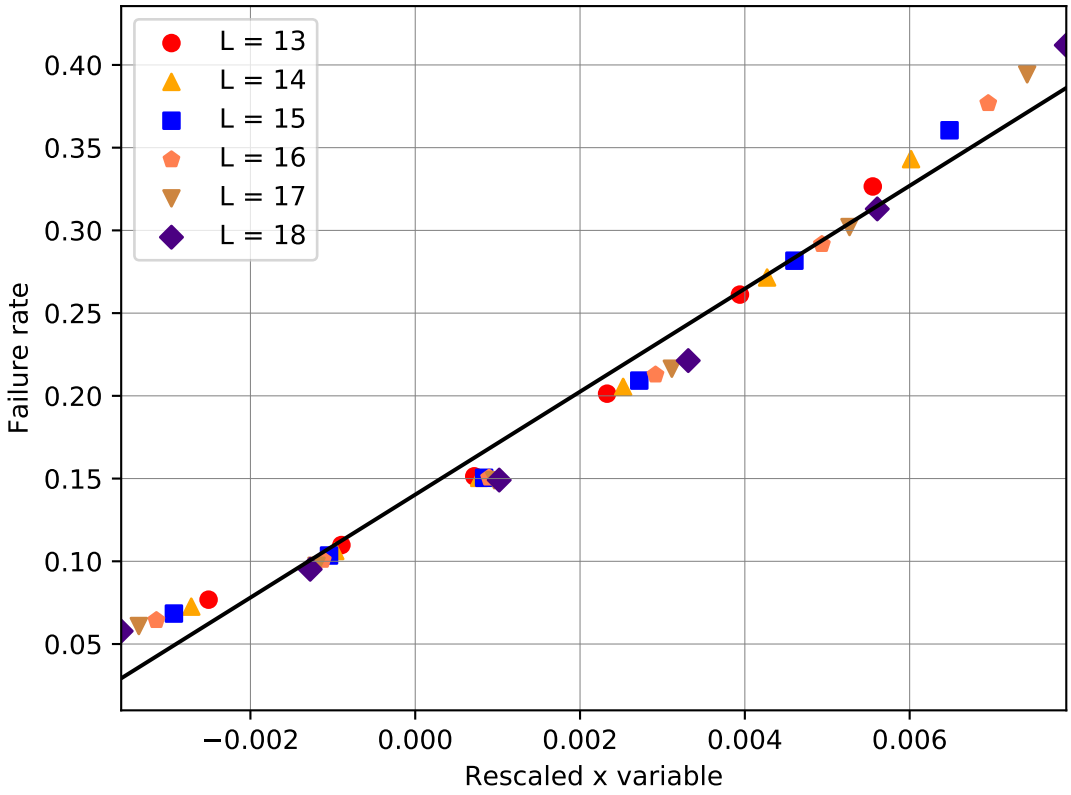




$$p_{even} = (0.295 \pm 0.015)\%$$

$$p_{odd} = (0.296 \pm 0.013)\%$$

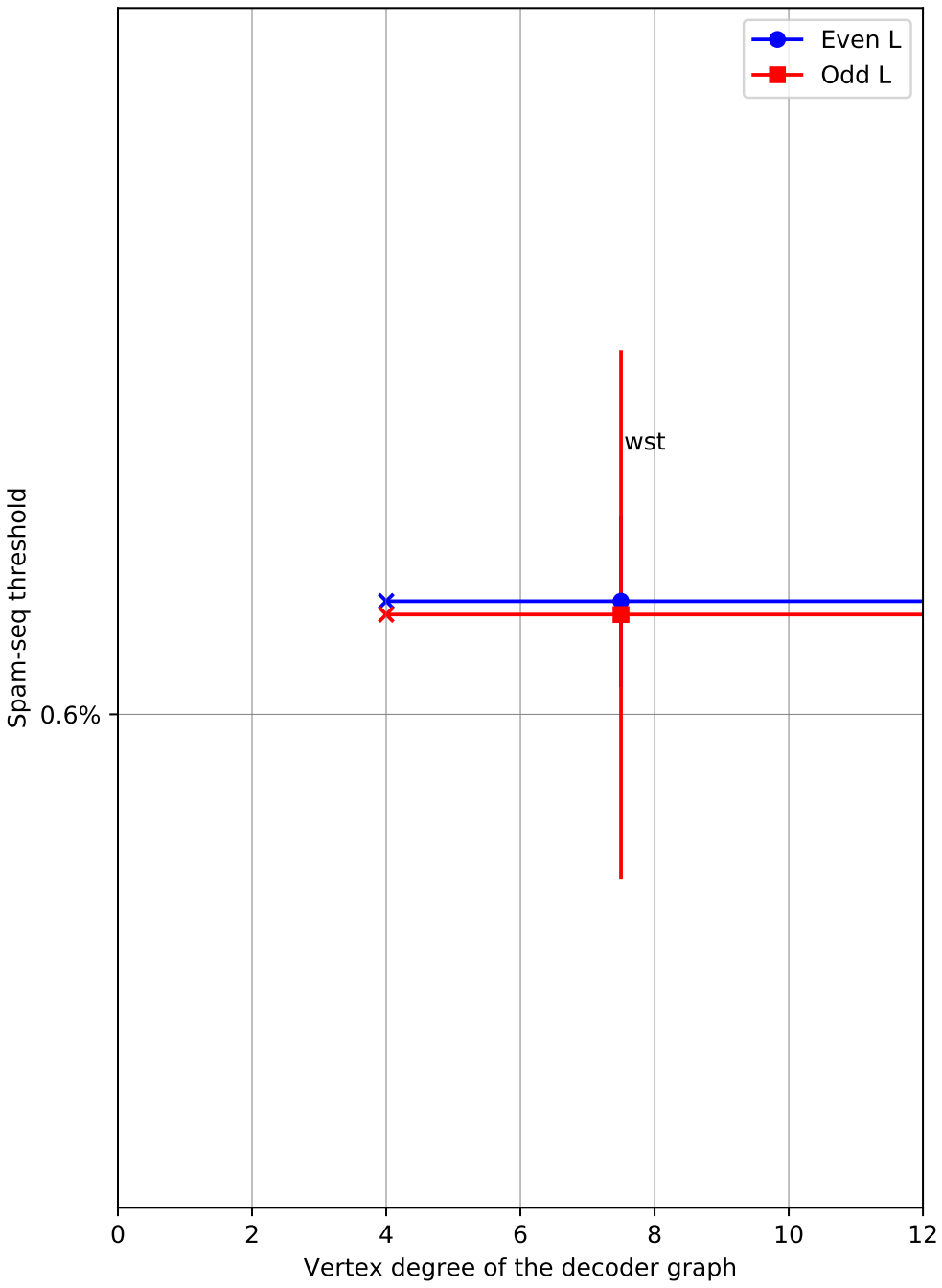
Unified fit:

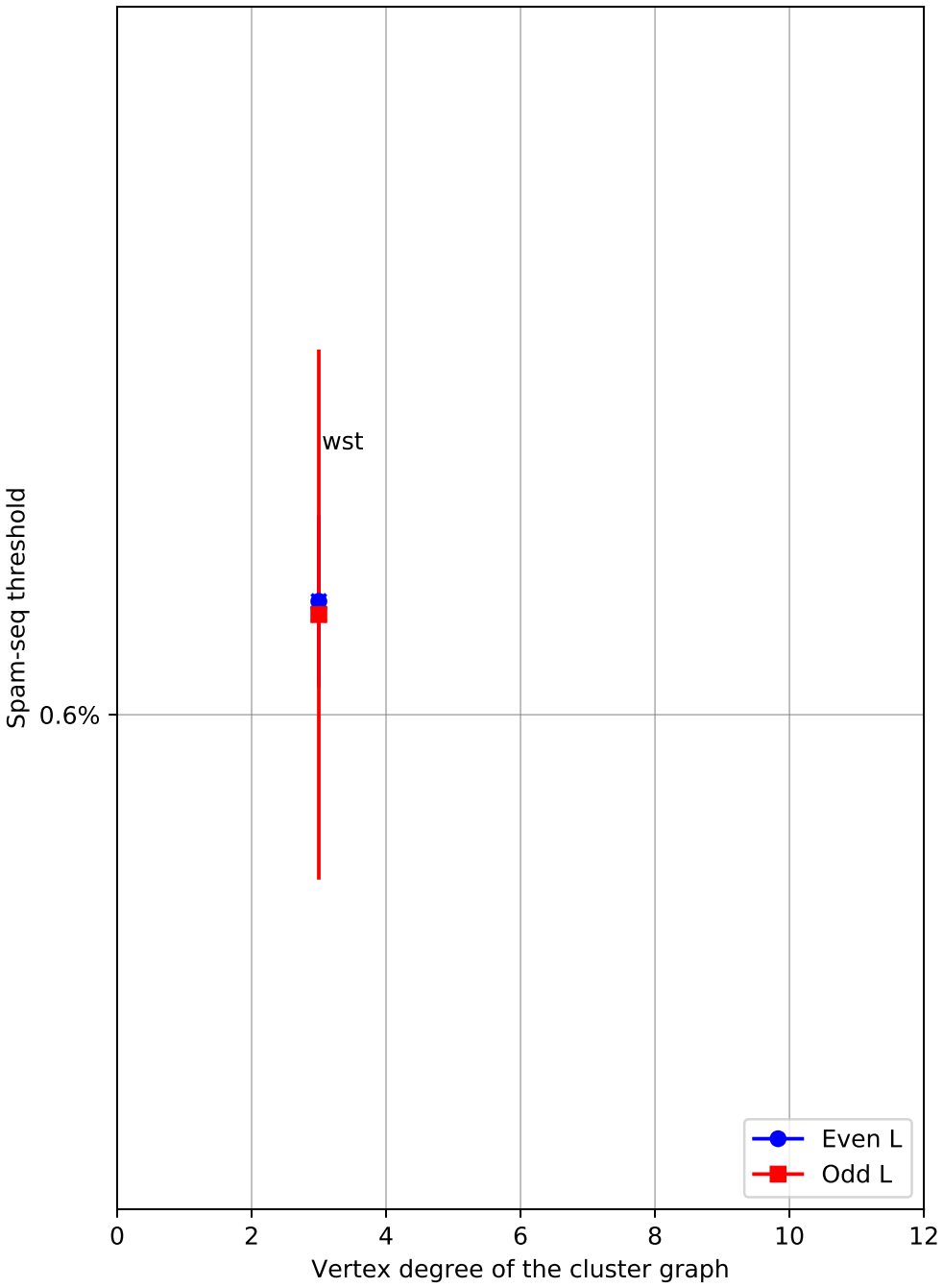


$$p_{th} = (0.296 \pm 0.009)\%$$

SPAM-SEQ

Dependence of the thresholds on the features of the graph:

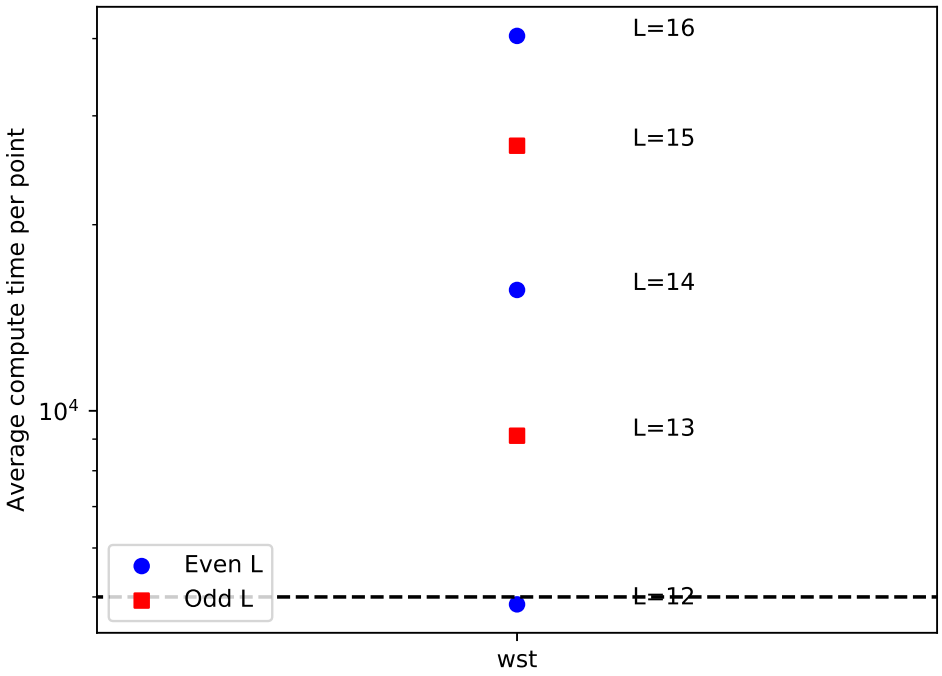



wst
Spam-seq threshold
0.6%
Even L
Odd L
0
2
4
6
8
10
12
Vertex degree of the cluster graph

Ranking

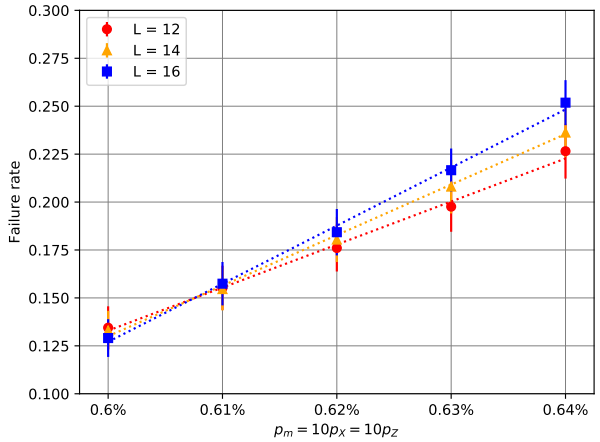
Lattice	Avg d	Avg g	Even Threshold	Odd Threshold	Unified Threshold
wst	7.5	3.0	$(0.607 \pm 0.006)\%$	$(0.607 \pm 0.017)\%$	$(0.607 \pm 0.005)\%$

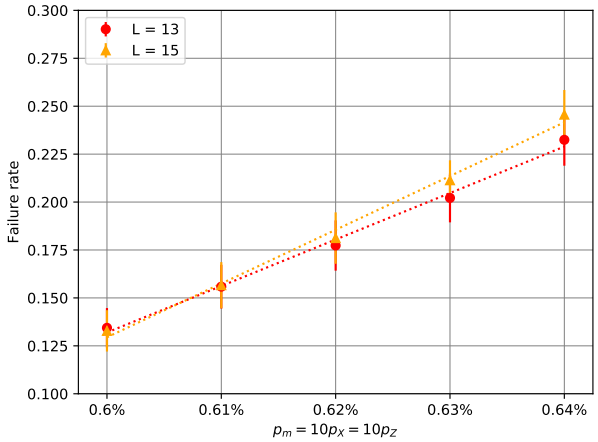
Precision in terms of compute time:



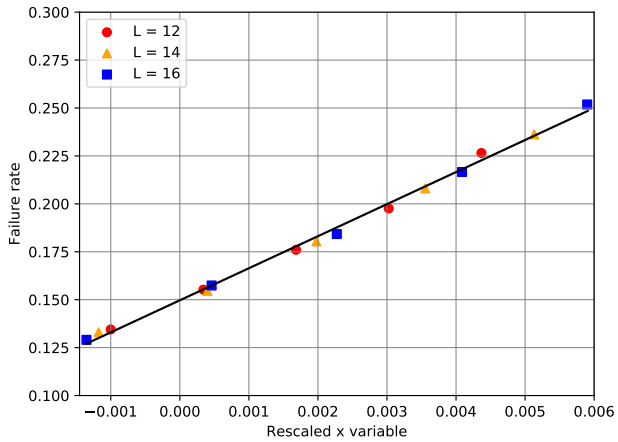
wst

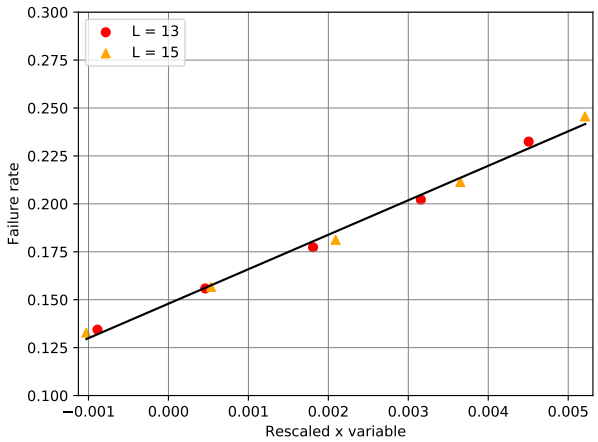
Increase of the failure rate with error probability:





Fitting all points to a linear function $f(x) = A + Bx$, where $x = (p - p_{th})L^{\nu}$ for some p_{th} and ν:

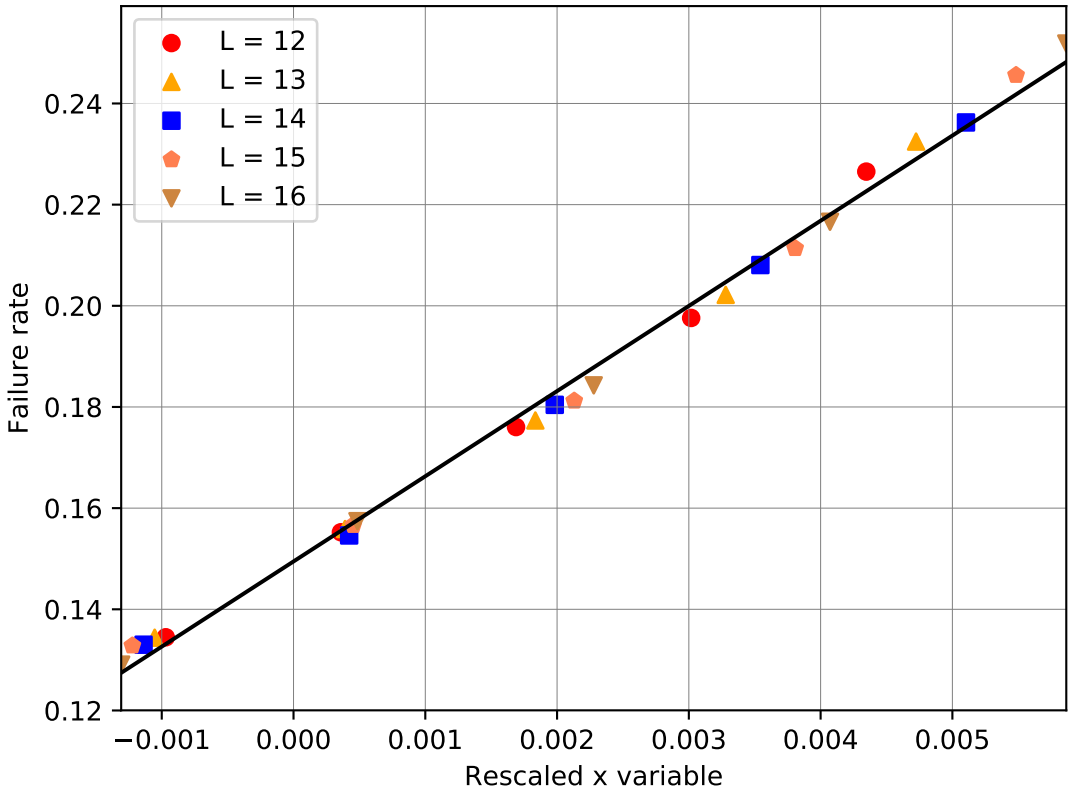




$$p_{even} = (0.607 \pm 0.006)\%$$

$$p_{odd} = (0.607 \pm 0.017)\%$$

Unified fit:



$$p_{th} = (0.607 \pm 0.005)\%$$