## 归一化最小和

码率1/3 迭代50次 浮点 归一化最小和

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 1.1000 1.2000 1.3000 1.4000 1.5000]

be =[ 24.2080 23.0742 23.4473 22.0312 20.9844 21.0625 21.6553 20.8525 20.8672 20.2861 249.3535 77.8467 22.4199 6.1562 1.6250 0.4795]

ble =[ 101 101 101 101 101 101 101 101 101 101 1277 406 117 40 10 8]

ii0 = [ 107 130 139 170 221 359 507 838 1997 5354 147959 147959 147959 147959 147959 147959]

ber=be./ii0

bler=ble./ii0

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码率1/6 迭代50次 浮点 归一化最小和

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000]

be =[ 19.4014 19.5186 19.4512 20.5908 20.5273 20.8896 20.6553 ]

ble =[ 101 101 101 101 101 101 101]

ii0 =[ 510 1011 2230 5228 16507 72399 271129 ]

ber=be./ii0

bler=ble./ii0

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码率1/10 迭代50次 浮点 归一化最小和

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000]

be =[ 6.0156 6.1221 5.3955 4.6035 3.2939 3.3223 0.6357 ]

ble =[ 101 101 101 101 101 101 22]

ii0 =[ 1393 3622 8606 22192 112324 294501 251787]

ber=be./ii0

bler=ble./ii0

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码率1/20 迭代50次 浮点 归一化最小和

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 1.1000 1.2000 1.3000]

be =[ 36.7383 34.2793 34.1348 35.3877 35.6514 33.2754 32.2441 32.6436 30.1270 26.4688 20.7979 13.2109 7.5000 1.4414]

ble =[ 101 101 101 101 101 101 101 101 101 101 101 101 101 101]

ii0 =[ 138 183 231 333 596 1229 2146 5630 12913 36226 124362 260882 450159 780402]

ber=be./ii0

bler=ble./ii0

## 偏移最小和

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码率1/3 迭代50次 浮点 偏移最小和

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 1.1000 1.2 ]

be =[ 17.5576 15.5791 15.2188 15.0283 15.7637 14.0840 14.5742 14.9199 14.0664 14.3389 12.9727 9.4102 5.4717 ]

ble =[ 101 101 101 101 101 101 101 101 101 101 101 101 96 ]

ii0 =[ 132 154 219 350 523 1058 2317 6442 18794 46853 156708 644155 1361888]

ber=be./ii0

bler=ble./ii0

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码率1/6 迭代50次 浮点 偏移最小和

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 ]

be =[ 9.8145 8.7852 8.1582 7.7842 7.8184 7.1924 7.1934 6.3428 4.9121 0.1250]

ble =[ 101 101 101 101 101 101 101 101 101 3]

ii0 =[ 403 759 1648 4648 15007 63854 262939 1619540 8735542 2510283]

ber=be./ii0

bler=ble./ii0

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码率1/10 迭代50次 浮点 偏移最小和

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1]

be =[ 6.5449 6.2500 5.3867 5.1426 4.8252 4.0742 3.6895 3.8584 3.6055 2.8877 2.5596 ]

ble =[ 101 101 101 101 101 101 101 101 101 101 101]

ii0 =[ 144 175 368 597 1176 2757 6944 18958 87786 301549 925949]

ber=be./ii0

bler=ble./ii0

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码率1/20 迭代50次 浮点 偏移最小和

Ebn0p =[0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000 1.1000 1.2000 1.3000 1.4000 1.5000 1.6000]

be =[ 15.9336 12.6484 10.3594 8.5771 5.5117 3.4893 2.6016 1.2578 0.5098 0.4580 0.3525 0.3584 0.3877 0.3262 0.3535 0.3330 0.3174]

ble =[ 101 101 101 101 101 101 101 101 101 101 101 101 101 101 101 101 101]

ii0 =[ 116 149 204 338 757 1413 3057 7512 13553 21740 30110 42906 69863 93453 156529 216494 253417]

ber=be./ii0

bler=ble./ii0

## BP算法

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码率1/3 迭代50次 浮点 BP

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000 0.7000 0.8000 0.9000 1.0000]

be =[ 13.9160 13.9082 12.4863 10.7783 11.7295 9.1699 10.1914 9.8857 10.0977 6.5781 4.6201 ]

ble =[ 101 101 101 101 101 101 101 101 101 101 101]

ii0 =[ 194 322 539 951 1726 4286 11240 30480 81760 230619 646021]

ber=be./ii0

bler=ble./ii0

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码率1/6 迭代50次 浮点 BP

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000]

be =[ 6.4248 6.6768 5.5703 4.4961 3.5801]

ble =[ 101 101 101 101 101]

ii0 =[ 6570 21292 75604 203593 745363]

ber=be./ii0

bler=ble./ii0

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码率1/10 迭代50次 浮点 BP

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000 0.6000]

be =[ 3.6973 3.4590 3.1201 2.9990 2.1973 2.5635 2.7334]

ble =[ 101 101 101 101 101 101 101]

ii0 =[ 2859 6528 17509 31358 83950 181553 371233]

ber=be./ii0

bler=ble./ii0

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码率1/20 迭代50次 浮点 BP

Ebn0p =[ 0 0.1000 0.2000 0.3000 0.4000 0.5000]

be =[ 0.6279 0.6465 0.5693 0.5527 0.5518 0.5898]

ble =[ 101 101 101 101 101 101]

ii0 =[ 30164 55738 68710 85173 111789 142106]

ber=be./ii0

bler=ble./ii0



LDPC码BER性能（迭代50次、浮点、偏移最小和）



LDPC码BLER性能（迭代50次、浮点、偏移最小和）



1/3码率LDPC码BER性能比较（迭代50次、浮点）



1/3码率LDPC码BLER性能（迭代50次、浮点）



LDPC码BER性能比较（迭代50次、浮点）



LDPC码BLER性能比较（迭代50次、浮点）



LDPC码BER性能比较（迭代50次、浮点）



LDPC码BLER性能比较（迭代50次、浮点）