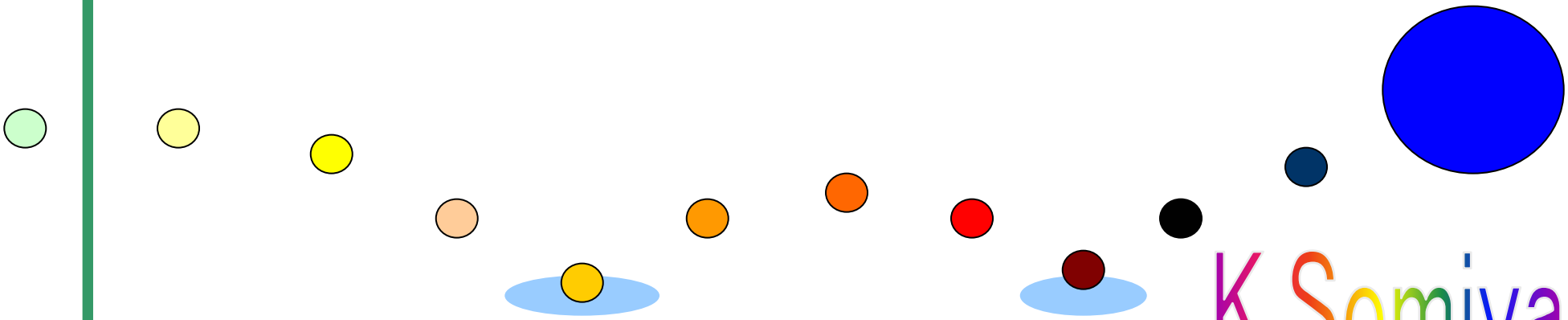
BRSEとDRSE

LCGT干渉計部会

July 2009

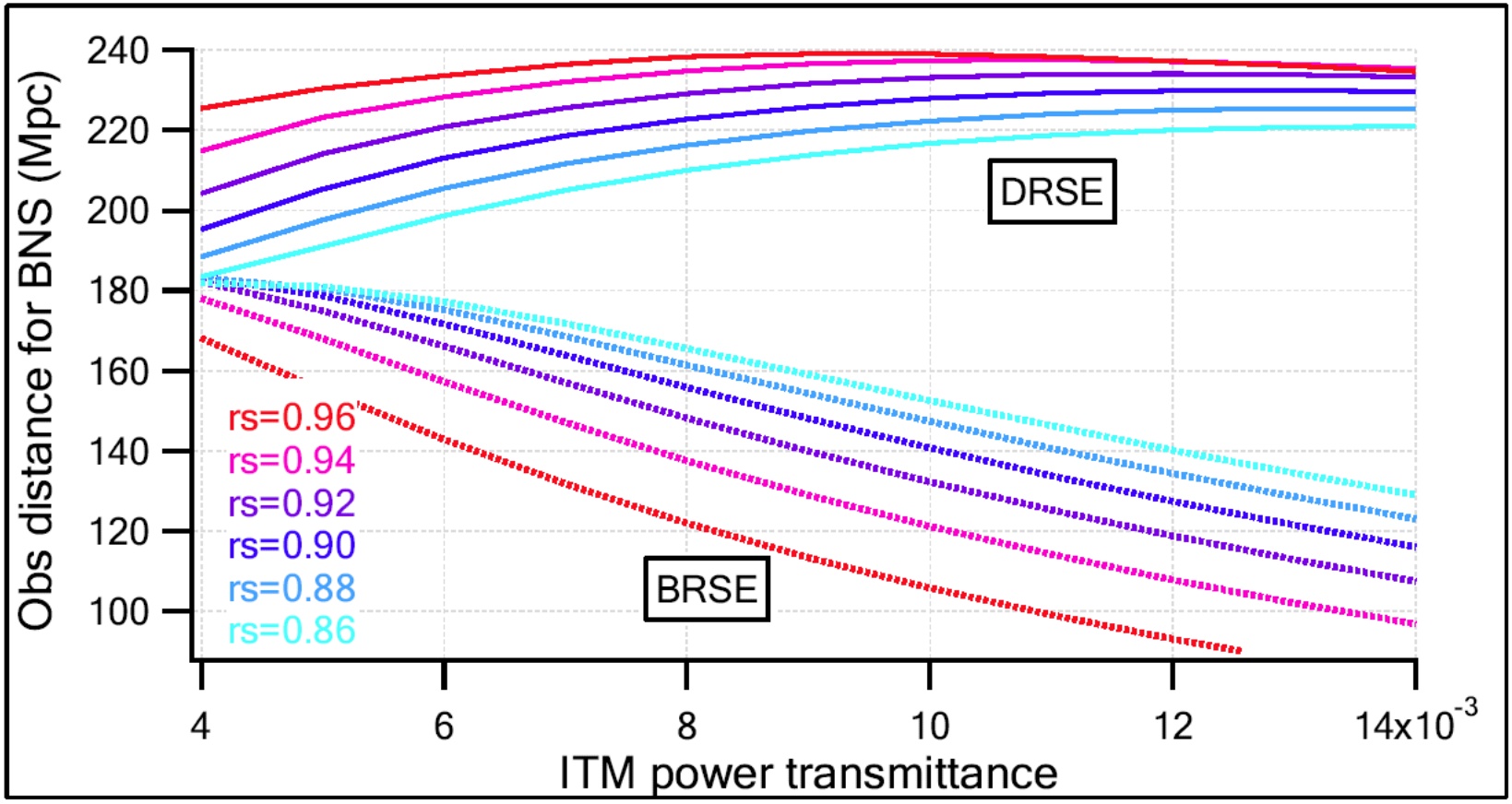
カリフォルニア工科大　宗宮健太郎



前回からの進展

- サスペンション熱雑音の再計算
  （バイオリンなし→私の近似式→山元計算）
- 熱雑音低減の可能性を探る
- 最適化の再計算

中性子連星

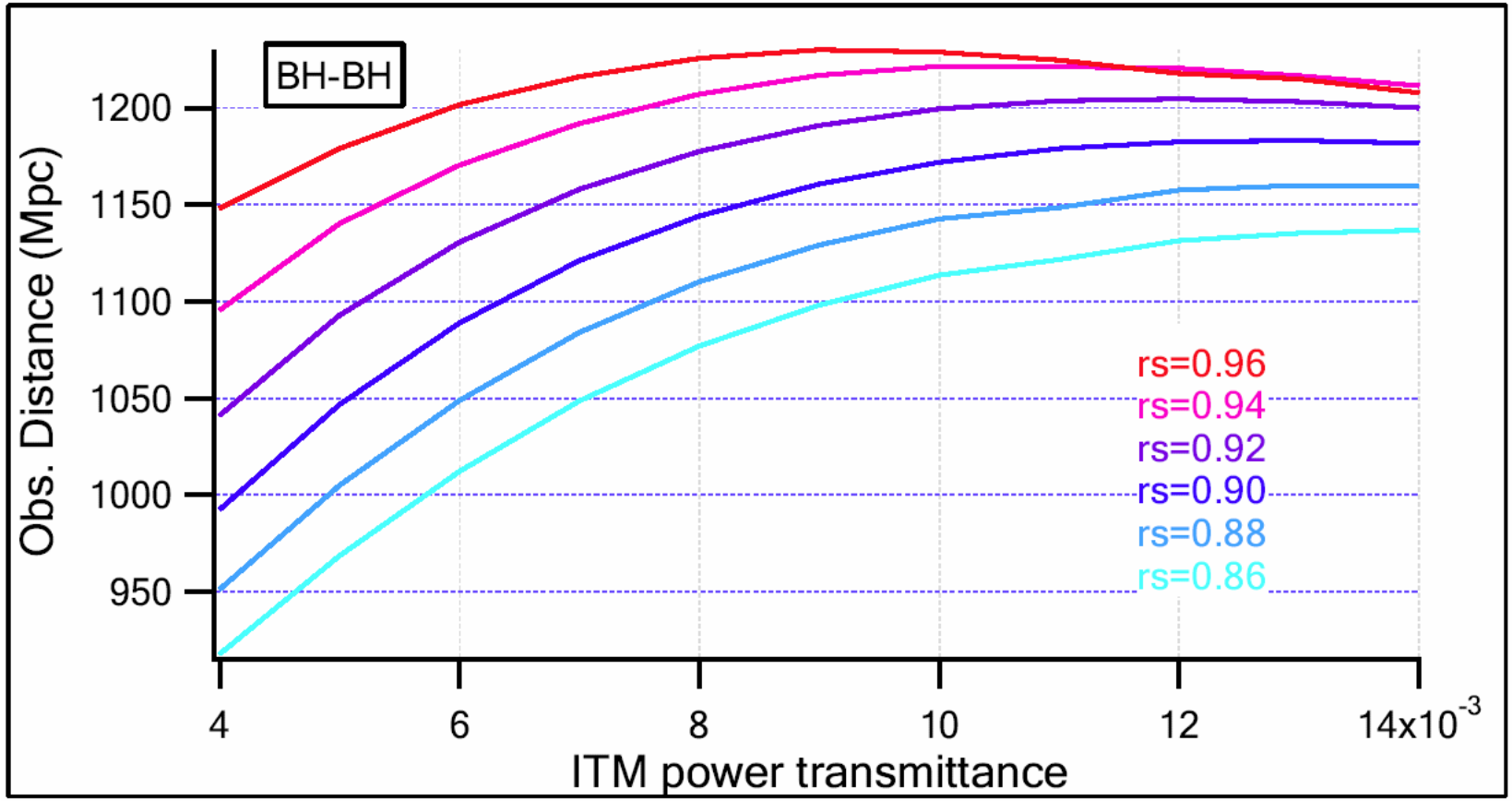


前回見せた上のほうのつぶれてたところがよくなっている

ブラックホール連星

10Ms-10Ms

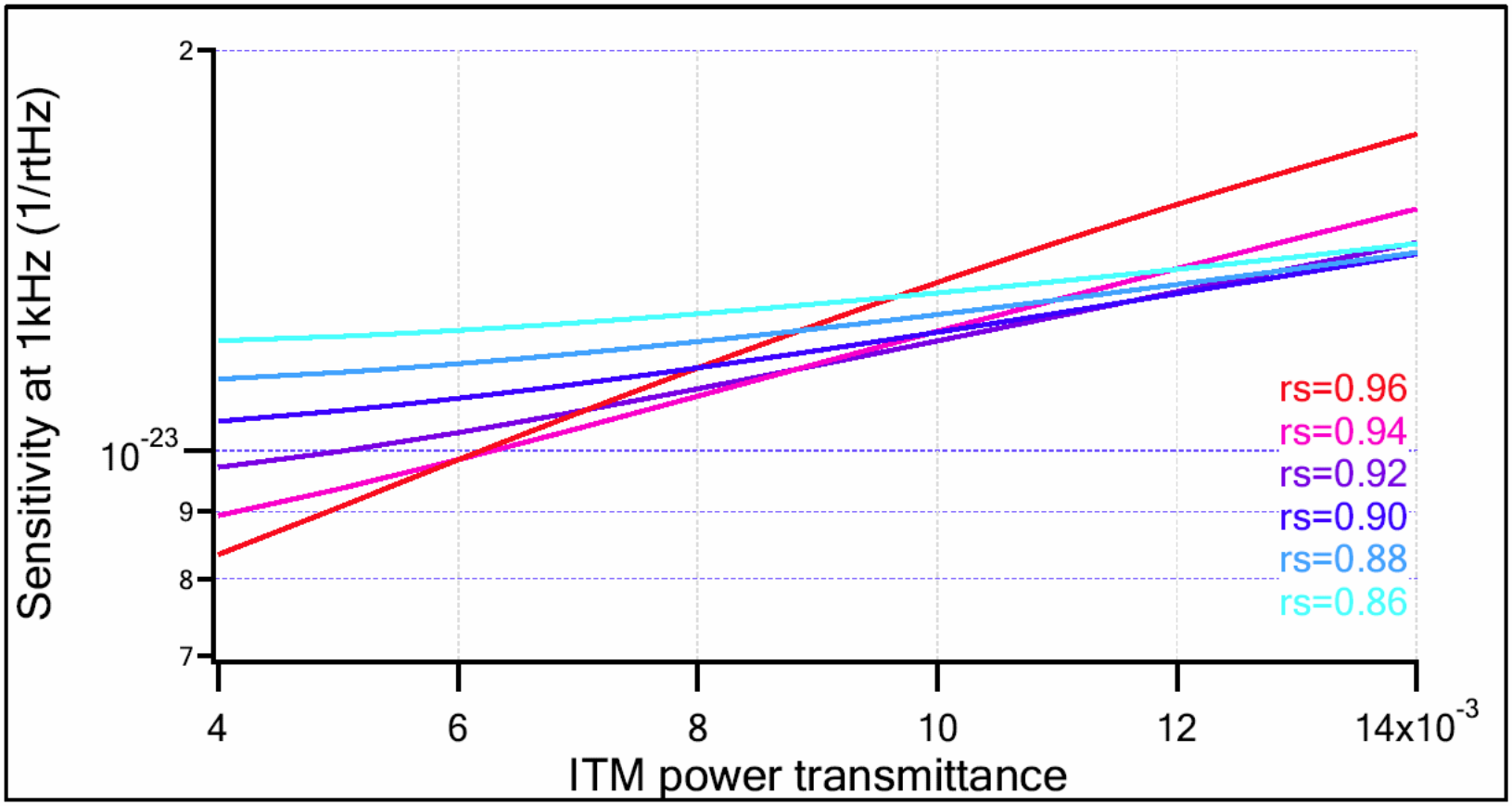
パワーも各点で最適化済み



前ページのDRSEと似た傾向

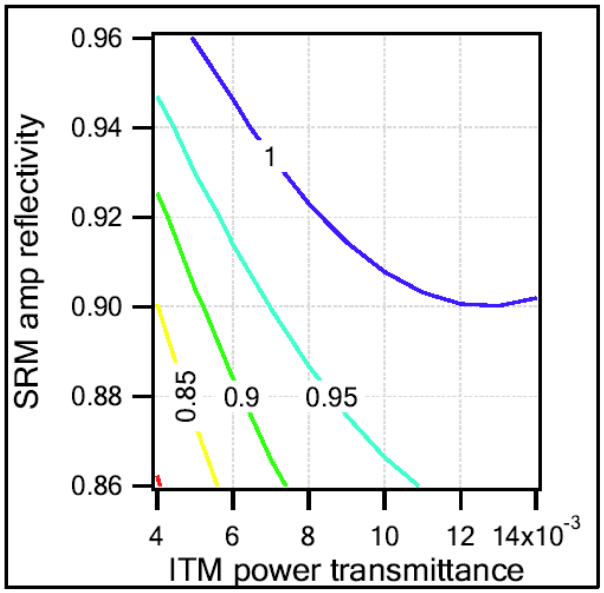
1kHzの感度

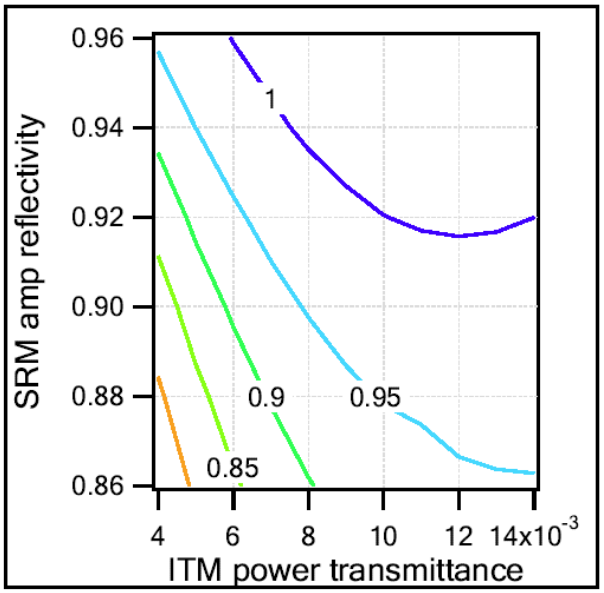
BRSE

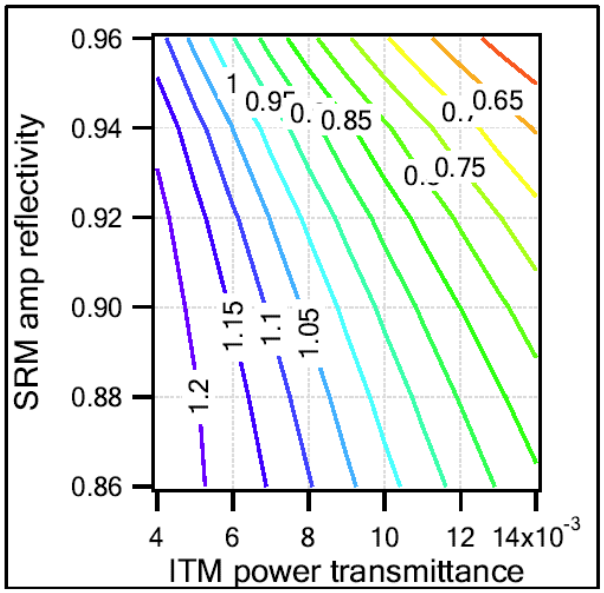


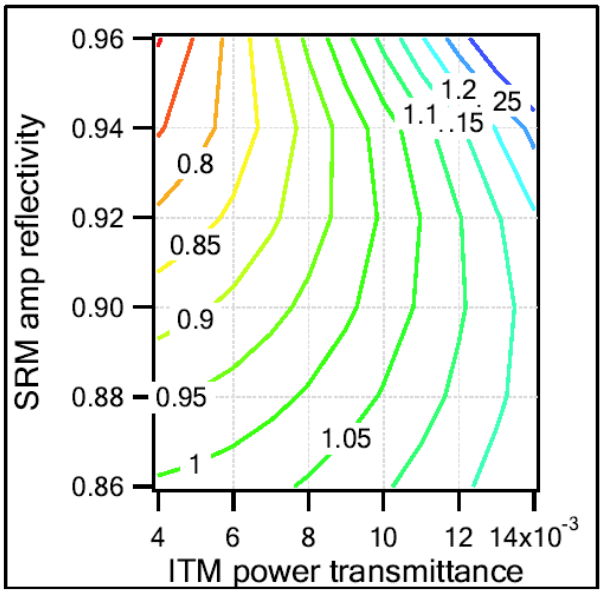
以上の4つをまとめて考える

勾配









右上:BBH norm by 1.2Gpc
左上:BNS norm by 230Mpc
(DRSE)
左下:BNS norm by 150Mpc
(BRSE)
右下:1kHz norm by 1.2e-23

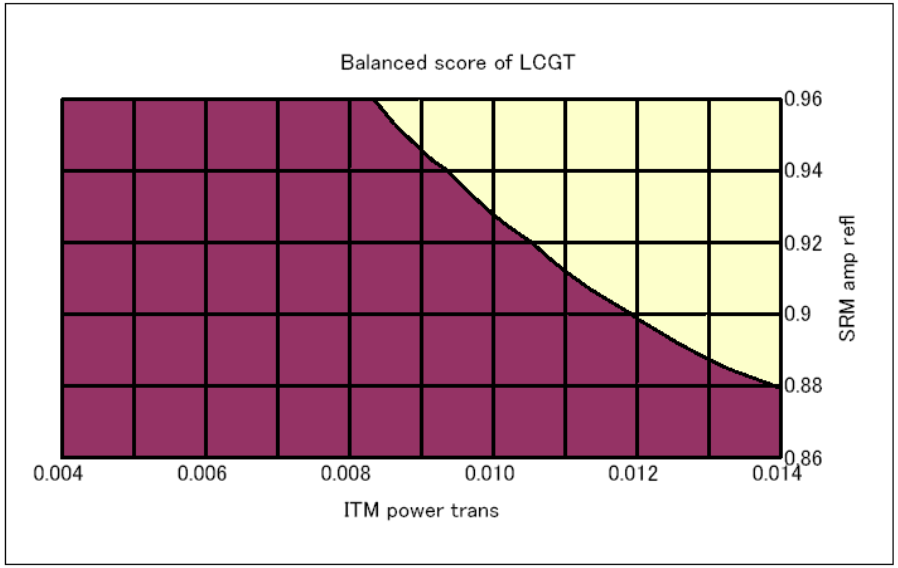
重みを考えたい

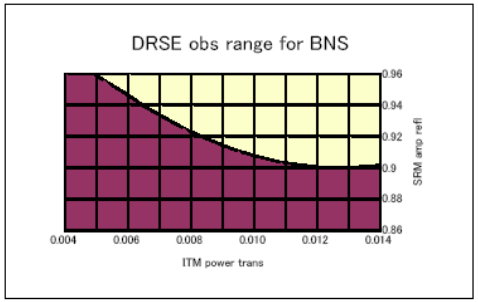
エクセルを見てください

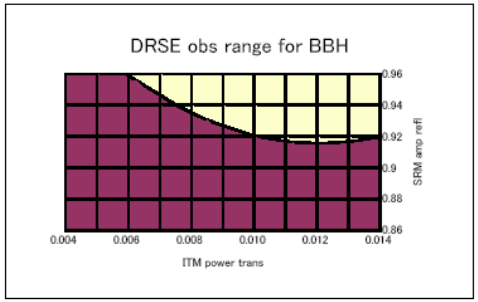
0.008	0.897533	0.925192	0.953533	0.981325	1.006092	1.021492
0.009	0.915142	0.941133	0.96735	0.992558	1.014108	1.025133
0.01	0.92805	0.952333	0.976733	0.999592	1.018008	1.024142
0.011	0.934758	0.95715	0.982617	1.003142	1.01775	1.020583
0.012	0.943008	0.96465	0.985475	1.003967	1.0171	1.014967
0.013	0.94625	0.966658	0.986008	1.002767	1.013925	1.012458
0.014	0.947333	0.966658	0.98475	1.000092	1.009708	1.006675

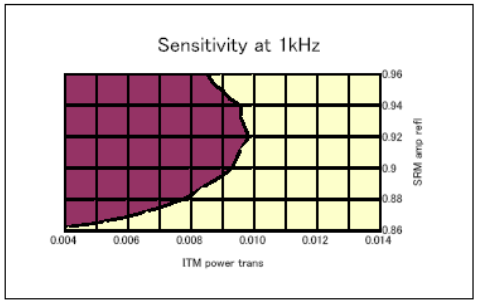
Balanced score

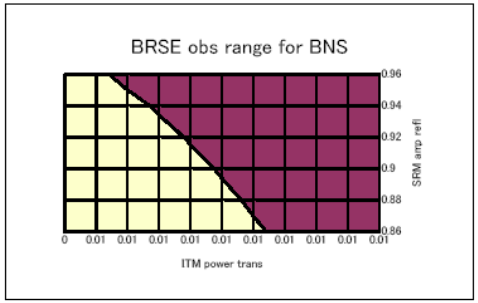
	1kHz	BRSE	NSNS	BHBH		
	20	10	50	20	%	
	0.86	0.88	0.9	0.92	0.94	0.96
0.004	0.874636	0.878772	0.887588	0.900821	0.91721	0.932749
0.005	0.900486	0.908129	0.918438	0.930674	0.943084	0.951695
0.006	0.924031	0.932076	0.941477	0.951396	0.960386	0.967216
0.007	0.943049	0.950432	0.958464	0.966601	0.974376	0.982324
0.008	0.957677	0.964248	0.971303	0.978696	0.986576	0.996038
0.009	0.968821	0.974813	0.981364	0.988569	0.996872	1.007815
0.01	0.977309	0.982918	0.989275	0.996558	1.005434	1.017898
0.011	0.983236	0.988586	0.995501	1.003037	1.012539	1.027157
0.012	0.988453	0.993912	1.000397	1.008431	1.019264	1.036044
0.013	0.991903	0.997502	1.004352	1.013136	1.025438	1.045782
0.014	0.994365	1.00027	1.007682	1.017461	1.031519	1.055195







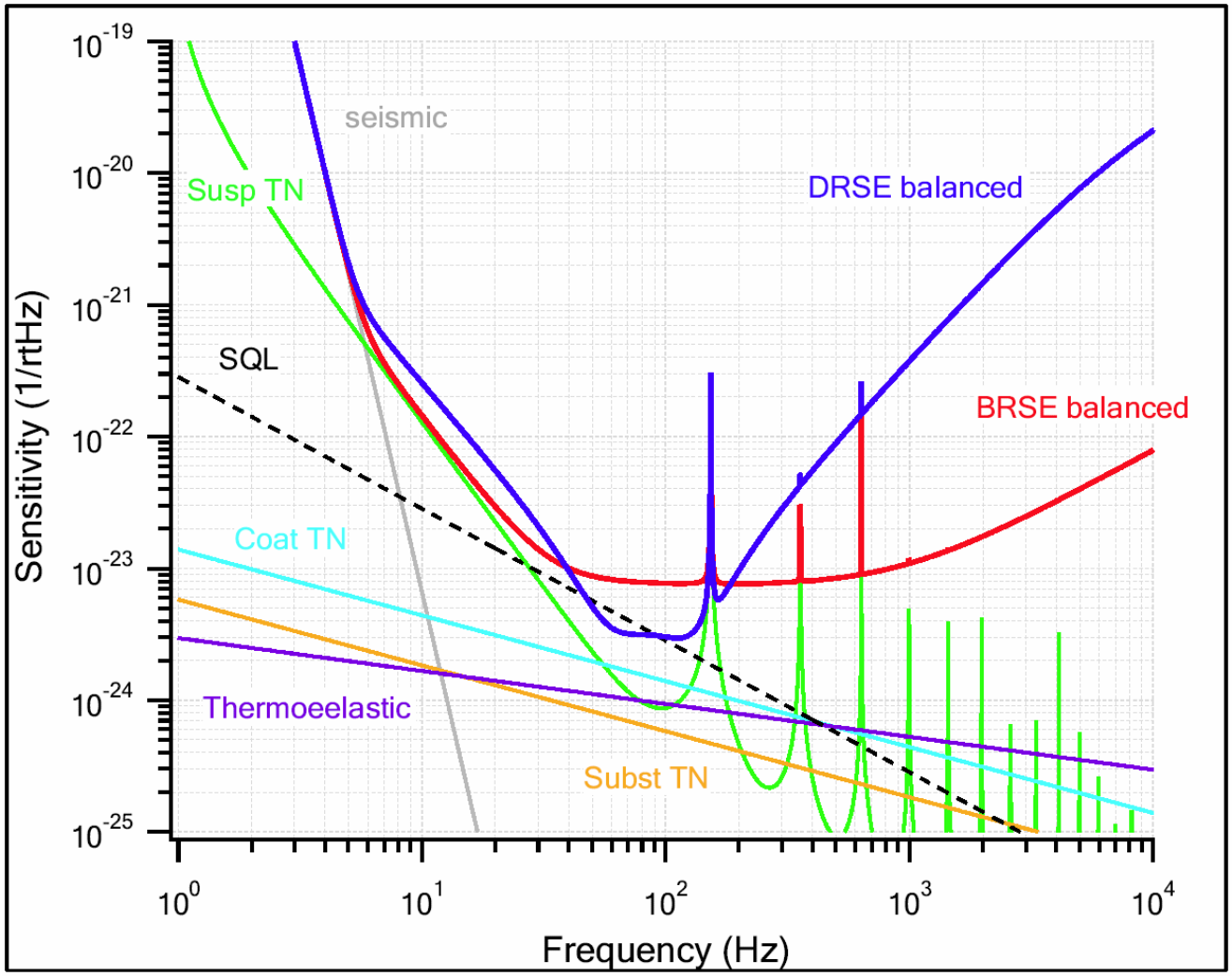




規格化は
1.2e-23,150M,230M,1.2Gpc
重みは
20%,10%,50%,20%

各人で試してください

バランスドパラメタ



T=0.008, rs=0.94, 75W for both, SN=10 at 235Mpc (D) 138Mpc (B)