TABLE DE "FONCTIONS BOOSTER"

Sur demande de Monsieur P. Germain, il a été écrit un programme
Fortran permettant d'obtenir un tableau des fonctions Booster suivantes en
fonction du champ B, et en supposant $\dot{B}$(BDOT), eV(EV) et ϕ_s(PHIS) constants.

$$t \quad = \quad \frac{B - B_0}{\dot{B}} \quad ; \quad \text{(dans la table de résultats : T)}$$

$$\gamma \quad = \quad \left[\left(\frac{e}{m} \cdot \frac{\rho}{c} \right)^2 \cdot B^2 + 1 \right]^{\frac{1}{2}} \quad ; \quad \text{(GAMMA)}$$

$$K \quad = \quad E_0 (\gamma - 1) \quad ; \quad \text{(K)}$$

$$pc \quad = \quad B\rho c \quad ; \quad \text{(PC)}$$

$$\beta\gamma \quad = \quad \frac{pc}{E_0} \quad ; \quad \text{(BETAGMA)}$$

$$\beta \quad = \quad \frac{\beta\gamma}{\gamma} \quad ; \quad \text{(BETA)}$$

$$\eta \quad = \quad \gamma^{-2} - (Q_h - 0.17)^{-2} \quad ; \quad \text{(ETA)}$$

$$\left(\frac{\eta}{\gamma} \right)^{\frac{1}{2}} \quad ; \quad \text{(EGA4)}$$

$$f_{SY} \quad = \quad \frac{1}{2\pi} \left(\frac{h \ c^2 \ eV \ \cos \phi_s}{2\pi \ E_0 \ R^2} \right)^{\frac{1}{2}} \cdot \left(\frac{\eta}{\gamma} \right)^{\frac{1}{2}} \quad ; \quad \text{(FSY)}$$

$$T_{SY} = \frac{1}{f_{SY}} \quad ; \quad (TSY)$$

$$\tau = \frac{2\pi R}{\beta_c} \quad ; \quad (TAU)$$

$$\Omega_{SY} = 2\pi \, f_{SY} \quad ; \quad (OSY)$$

$$\left(\frac{\Delta p}{p}\right)_{max} = \frac{1}{\pi} \cdot \frac{eV \cos \phi_s}{E_o} \cdot \frac{c}{2\pi R} \cdot \frac{1}{\beta\gamma} \cdot \frac{1}{f_{SY}} \left[1 - (\frac{\pi}{2} - \phi_s) \, tg \, \phi_s\right]^{\frac{1}{2}} \quad ;$$

(DPMAX)   (Demi-hauteur du "Bucket" dans le plan $\frac{\Delta p}{p}.\Theta$).

Les données initiales, telles que R, ρ, ϕ_s et Q_h sont indiquées au bas de la page des résultats.

Un exemple de table de résultats est publié présentement, avec des valeurs de B allant de 1250 à 5950 Gauss avec un pas de 100.

Il est évidemment facile d'obtenir des tables correspondant à d'autres valeurs initiales et à d'autres valeurs de B.

D. Gueugnon

<u>Distribution</u> (du résumé)

Personnel scientifique et technique PS

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BODATA   23/10/73

B (GAUSS)	T (MSEC)	K (MEV)	PC (MEV/C)	BETA	GAMMA	BETAGMA	ETA	EGA4	TAU (MUSEC)	TSY (MSEC)	FSY (KHZ)	OSY (1/MSEC)	DPMAX (E=3)
1250	.64	49.49	308.7	.3126	1.0528	.3291	.8566	.9498	1.6763	.182	5.483	34.449	4.015
1350	12.18	57.49	333.4	.3349	1.0613	.3554	.8422	.9438	1.5647	.185	5.414	34.020	3.764
1450	25.01	66.03	358.1	.3566	1.0704	.3817	.8272	.9376	1.4693	.187	5.343	33.571	3.581
1550	37.83	75.10	382.8	.3778	1.0800	.4080	.8116	.9311	1.3869	.190	5.269	33.105	3.365
1650	50.65	84.69	407.5	.3984	1.0903	.4344	.7956	.9243	1.3151	.193	5.192	32.623	3.212
1750	63.48	94.78	432.2	.4184	1.1010	.4607	.7793	.9172	1.2522	.196	5.113	32.128	3.075
1850	76.30	105.36	456.9	.4379	1.1123	.4870	.7626	.9100	1.1967	.199	5.033	31.622	2.955
1950	89.13	116.40	481.6	.4567	1.1241	.5133	.7458	.9025	1.1473	.202	4.951	31.107	2.860
2050	101.95	127.91	506.3	.4749	1.1363	.5397	.7288	.8949	1.1033	.205	4.868	30.584	2.797
2150	114.77	139.86	531.0	.4926	1.1491	.5660	.7117	.8871	1.0637	.209	4.783	30.036	2.679
2250	127.60	152.24	555.7	.5096	1.1623	.5923	.6946	.8792	1.0281	.213	4.699	29.523	2.602
2350	140.42	165.03	580.4	.5261	1.1759	.6186	.6776	.8713	.9959	.217	4.614	28.989	2.538
2450	153.24	178.22	605.1	.5420	1.1900	.6450	.6606	.8632	.9667	.221	4.629	28.453	2.480
2550	166.07	191.80	629.8	.5574	1.2044	.6713	.6437	.8550	.9401	.225	4.443	27.919	2.428
2650	178.89	205.75	654.5	.5722	1.2193	.6976	.6270	.8468	.9158	.229	4.359	27.386	2.382
2750	191.72	220.06	679.2	.5864	1.2345	.7239	.6105	.8386	.8935	.234	4.274	26.855	2.341
2850	204.54	234.72	703.9	.6001	1.2502	.7503	.5942	.8303	.8731	.239	4.190	26.326	2.304
2950	217.36	249.70	728.6	.6134	1.2661	.7766	.5781	.8220	.8543	.243	4.107	25.800	2.271
3050	230.19	265.01	753.3	.6261	1.2825	.8029	.5624	.8138	.8369	.248	4.026	25.289	2.241
3150	243.01	280.63	778.0	.6383	1.2991	.8292	.5469	.8055	.8208	.254	3.944	24.778	2.215
3250	255.83	296.54	802.7	.6501	1.3161	.8556	.5317	.7973	.8060	.259	3.863	24.274	2.191
3350	268.66	312.74	827.4	.6614	1.3333	.8819	.5169	.7891	.7922	.264	3.784	23.777	2.170
3450	281.48	329.21	852.1	.6723	1.3509	.9082	.5023	.7809	.7793	.270	3.706	23.288	2.152
3550	294.31	345.95	876.8	.6828	1.3687	.9345	.4881	.7728	.7674	.276	3.630	22.806	2.135
3650	307.13	362.94	901.5	.6929	1.3868	.9609	.4743	.7647	.7562	.281	3.554	22.333	2.121
3750	319.95	380.17	926.2	.7025	1.4052	.9872	.4608	.7567	.7458	.287	3.481	21.869	2.108
3850	332.78	397.64	950.9	.7118	1.4238	1.0135	.4476	.7488	.7361	.293	3.408	21.413	2.097
3950	345.60	415.33	975.6	.7208	1.4427	1.0398	.4348	.7409	.7269	.300	3.337	20.966	2.087
4050	358.43	433.24	1000.3	.7294	1.4618	1.0662	.4223	.7332	.7184	.306	3.267	20.528	2.076
4150	371.25	451.36	1025.0	.7376	1.4811	1.0925	.4102	.7255	.7103	.313	3.199	20.099	2.073
4250	384.07	469.68	1049.7	.7456	1.5006	1.1188	.3984	.7178	.7027	.319	3.132	19.679	2.067
4350	396.90	488.19	1074.4	.7532	1.5203	1.1451	.3870	.7103	.6956	.326	3.067	19.267	2.063
4450	409.72	506.89	1099.1	.7606	1.5402	1.1715	.3759	.7028	.6888	.333	3.003	18.865	2.057
4550	422.54	525.76	1123.8	.7676	1.5604	1.1978	.3651	.6955	.6826	.340	2.940	18.472	2.055
4650	435.37	544.81	1148.5	.7744	1.5807	1.2241	.3546	.6882	.6766	.347	2.879	18.088	2.055
4750	448.19	564.02	1173.2	.7810	1.6011	1.2504	.3444	.6810	.6709	.355	2.761	17.712	2.055
4850	461.02	583.39	1197.9	.7873	1.6218	1.2768	.3345	.6739	.6655	.362	2.703	17.345	2.058
4950	473.84	602.91	1222.6	.7933	1.6426	1.3031	.3250	.6669	.6605	.370	2.648	16.987	2.060
5050	486.66	622.57	1247.3	.7992	1.6635	1.3294	.3157	.6600	.6556	.378	2.693	16.636	2.063
5150	499.49	642.38	1272.0	.8048	1.6847	1.3557	.3067	.6532	.6511	.386	2.640	16.295	2.067
5250	512.31	662.33	1296.7	.8102	1.7059	1.3821	.2980	.6465	.6467	.394	2.640	15.961	2.071
5350	525.13	682.40	1321.4	.8154	1.7273	1.4084	.2895	.6398	.6426	.402	2.498	15.635	2.076
5450	537.96	702.60	1346.1	.8204	1.7488	1.4347	.2813	.6333	.6387	.410	2.438	15.316	2.081
5550	550.78	722.93	1370.8	.8252	1.7705	1.4610	.2734	.6268	.6349	.419	2.388	15.006	2.067
5650	563.61	743.37	1395.5	.8299	1.7923	1.4874	.2656	.6205	.6314	.427	2.340	14.703	2.063
5750	576.43	763.92	1420.2	.8344	1.8142	1.5137	.2582	.6142	.6280	.436	2.293	14.406	2.067
5850	589.25	784.59	1444.9	.8387	1.8362	1.5400	.2509	.6080	.6247	.445	2.247	14.117	2.063
5950	602.08	805.35	1469.6	.8429	1.8583	1.5664	.2439	.6019	.6216	.454	2.202	13.835	2.100

BO=1255 GAUSS   BDCT=/.758 GAUSS/MSEC   RO= 0.239 M   R=25 M   EV=12 KEV   PHIS= 4.8 DEG   OP= 4.85