Harmony of the spheres

Universal musical key

(The golden ratio and the Science of harmonics)

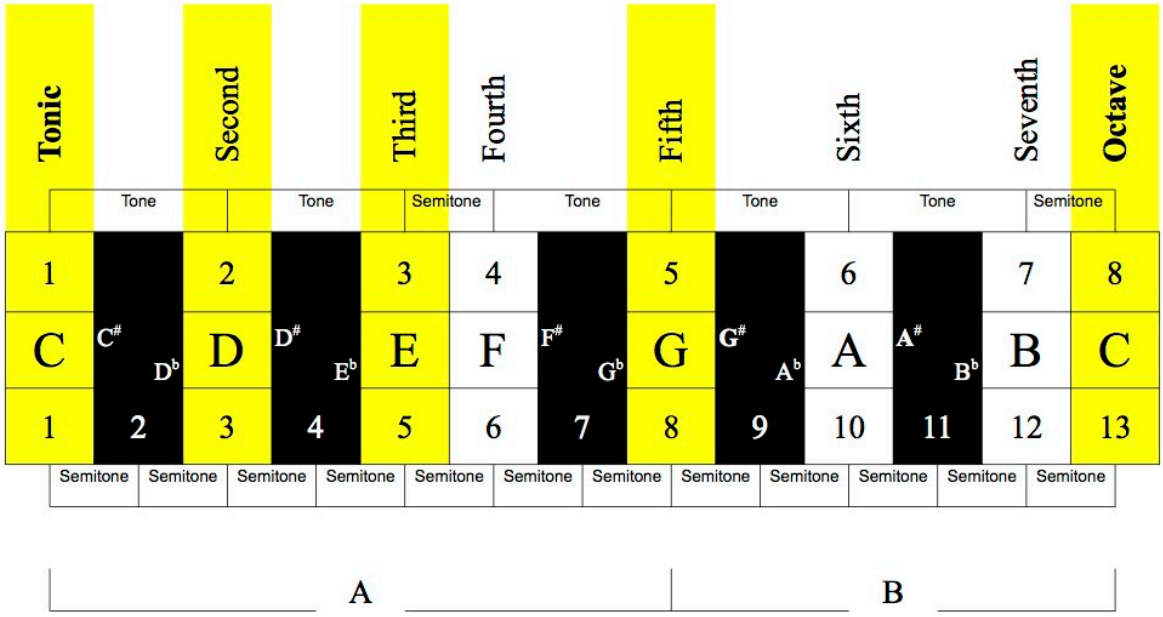
1st part: Introduction

If you love music, take a few minutes of your time and read attentively what is following and discover one of the greatest inventions based on a new musical perception. Everything started when the inventor associate together the diatonic scale and the chromatic scale by using numbers to indicate each degree (see Fig.1). By looking at the numbers that correspond to the intervals that constitute a Perfect Major Chord, you can see appear the legendary Fibonacci sequence (the golden section - PHI - or the divine proportion). With the discovery of a “Musical Universal Key”, M. Sylvain Lalonde, the inventor, demonstrates where this revolutionary easy approach method begin.

With the research of the harmony

The golden section influences the Western vision of the harmony
The sequence of Fibonacci… 1-1-2-3-5-8-13… applies to this rule

Ex: Perfect Majeur Chords: C,E,G,C



When (A + B) / A = A / B. The A / B ratio is then equal to the golden ratio.

8 / 5 = 1.6

Uclide d'Alexandrie

* For more details on natural harmonics see fig.6 & 7 section R&D

2nd part: Diatonic scale vs Chromatic scale

12 Sounds = 12 Tones = 12 Tonalities

Let's look at the same graphics on a 360-degree platform.. The use of black and white is used to represent the notes of a piano, to help understand this new perception.

Select and print Fig. 3 (picture) cut the two discs, then cut down the 7 windows that correspond to the intervals on disc 1 (Item 32). Overlap disc 1 over the second disc (Item 30) and then position the 1st degree ("Tonic") on C,
you'll get the "C-D-E-F-G-A-B" sequence.

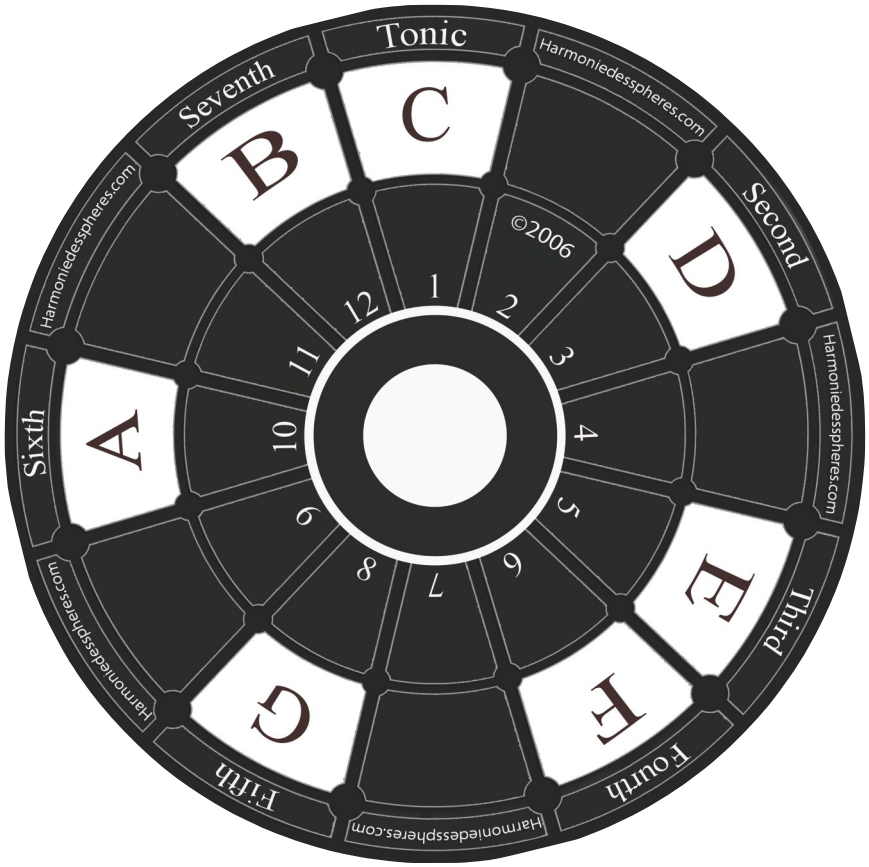
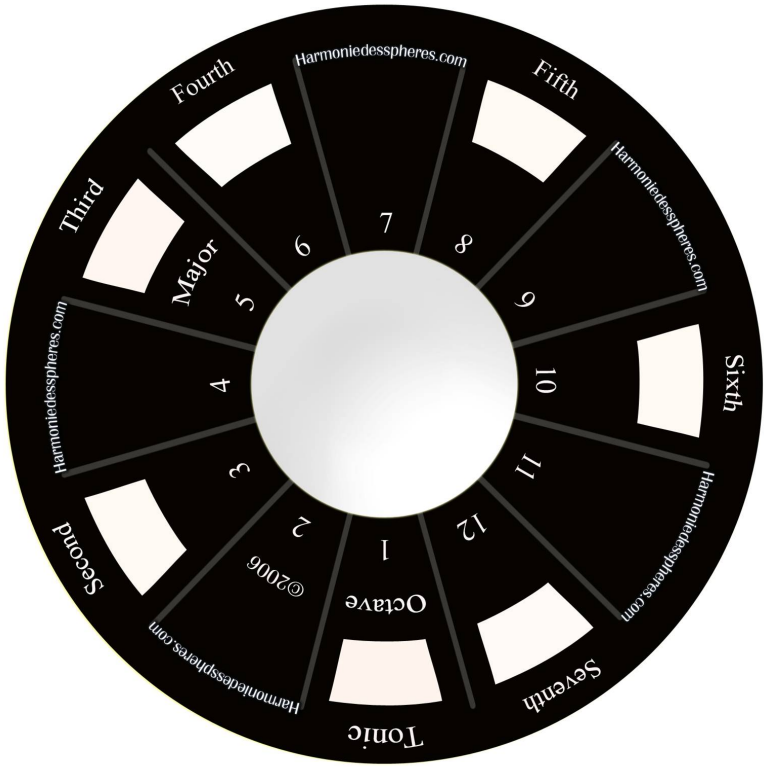
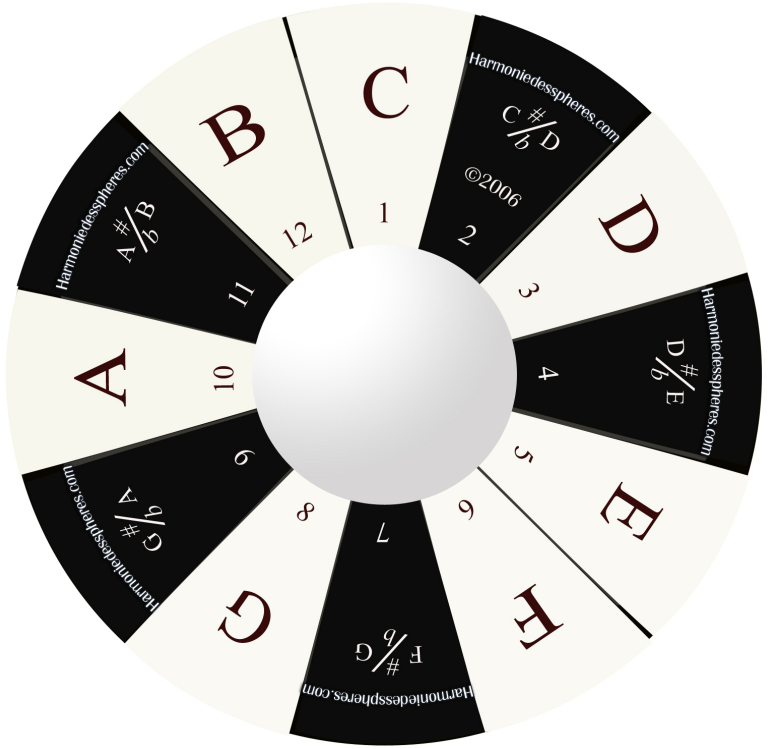


Fig.3



Disc 1
Item32



Disc II
Item30

Sylvain Lalonde founding president : Harmonie des sphères inc.

To contact us: sylvain.lalonde@me.com

Now move the “Tonic” on the “Fifth”, the G, this way you obtain the alterations that constitutes the key frame of our tonal system and so on. We call this:

« The Cycle of Fifths »

Ascending = Sharp order = F, C, G, D, A, E, B

Descending = Flat order = B, E, A, D, G, C, F

Fig.3B Note that the order of flats is the opposite of sharps

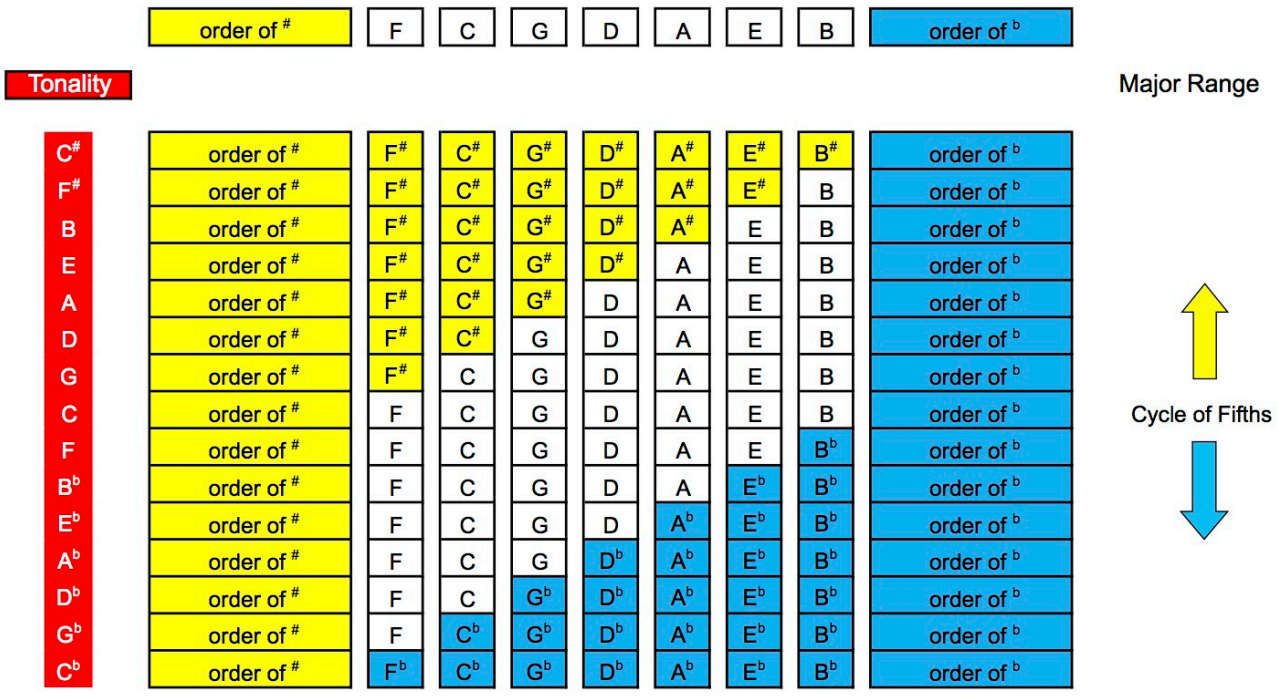
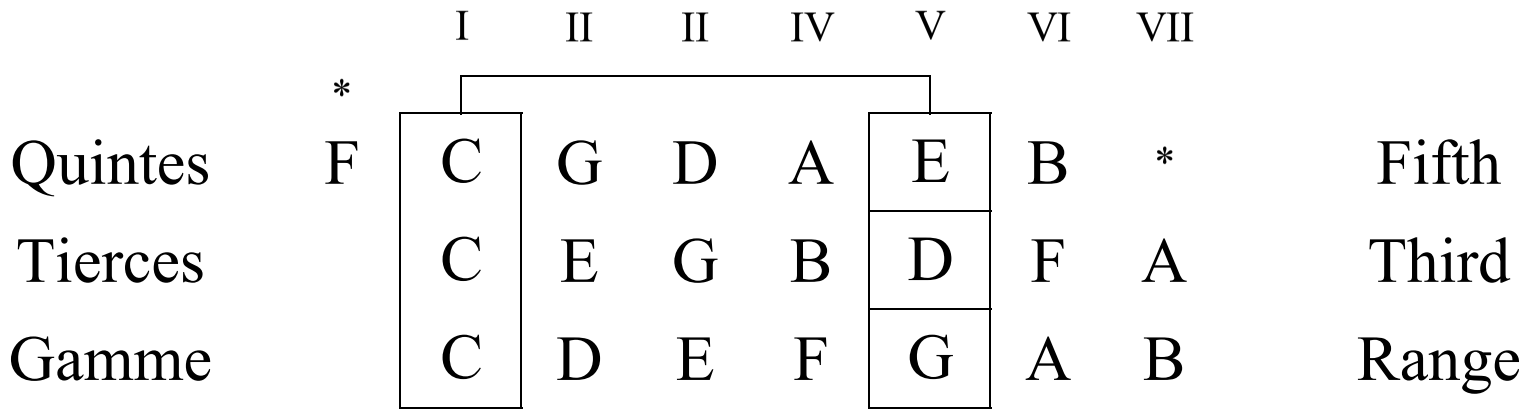


Fig.3d

Cycles des quintes

Cycles of fifths



* Selon l'ordre des dièses / orders of sharps

3rd part: the natural harmonics vs temperate

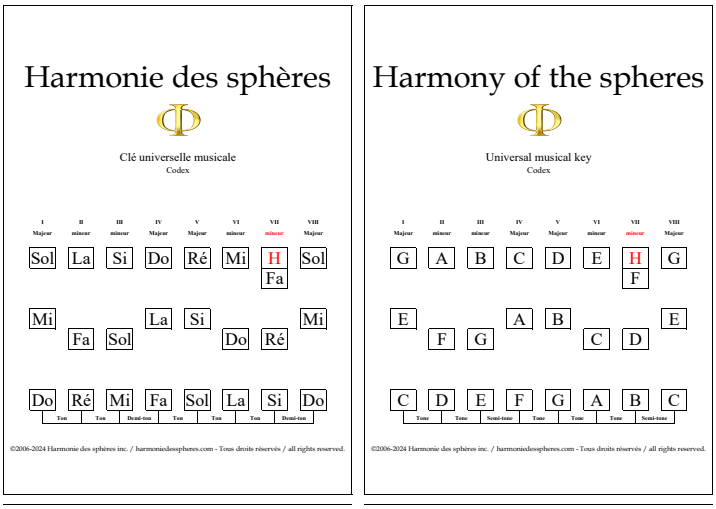
Each note is made of natural multiples called harmonics

At each degree of the scale, there is a three fondamental sound chord

The chords of three sounds consists of a fundamental
a third party (major or minor) and a fifth just.

« THE THIRD CYCLE »

« C, E, G, B, D, F, A »



The notes of a chord can be duplicated at the octave or arpeggiated without altering the identity of the chord.

You can select and print Fig.3c (Codex) in legal format.

Cut the two parts (A and B) according to the language you want.

Also cut the twenty-four (24) windows (Part A) that correspond to the

« Music intervals »

I degree	C, E, G
II degree	D, F, A
III degree	E, G, B
IV degree	F, A, C
V degree	G, B, D
VI degree	A, C, E
VII degree	B, D, F
VIII degree	C, E, G

Then superimpose part A on part B and position the 1st degree on the C, you will obtain at each degree the notes of all the chords.

You can change the tone as you wish,

The results will be the same.

P.S. You can also use an ABS tube with a diameter of 1.5 inch or 3.81 cm to make it circular shape.

Fig.3c (Codex)

PARTIE A

Harmonie des sphères

Clé universelle musicale
Codex

I Majeur	II mineur	III mineur	IV Majeur	V Majeur	VI mineur	VII mineur	VIII Majeur
Sol	La	Si	Do	Ré	Mi	H Fa	Sol
Mi	Fa	Sol	La	Si	Do	Ré	Mi
Do	Ré	Mi	Fa	Sol	La	Si	Do
	Ton	Ton	Demi-ton	Ton	Ton	Ton	Demi-ton

Harmony of the spheres

Universal musical key
Codex

I Majeur	II mineur	III mineur	IV Majeur	V Majeur	VI mineur	VII mineur	VIII Majeur
G	A	B	C	D	E	H F	G
E	F	G	A	B	C	D	E
C	D	E	F	G	A	B	C
	Tone	Tone	Semi-tone	Tone	Tone	Tone	Semi-tone

PARTIE A

PARTIE B

Do	Ré	Mi	Fa	Sol	La	Si	Do
Si	$Ré^{\flat}$ / $Do^{\#}$	$Mi^{\flat}$ / $Ré^{\#}$	Mi	$Sol^{\flat}$ / $Fa^{\#}$	$La^{\flat}$ / $Sol^{\#}$	$Si^{\flat}$ / $La^{\#}$	Si
$Si^{\flat}$ / $La^{\#}$	Do	Ré	$Mi^{\flat}$ / $Ré^{\#}$	Fa	Sol	La	$Si^{\flat}$ / $La^{\#}$
La	Si	$Ré^{\flat}$ / $Do^{\#}$	Ré	Mi	$La^{\flat}$ / $Sol^{\#}$	$Si^{\flat}$ / $La^{\#}$	La
$La^{\flat}$ / $Sol^{\#}$	$Si^{\flat}$ / $La^{\#}$	Do	$Ré^{\flat}$ / $Do^{\#}$	$Mi^{\flat}$ / $Ré^{\#}$	Fa	Sol	$La^{\flat}$ / $Sol^{\#}$
Sol	La	$La^{\flat}$ / $Sol^{\#}$	Si	Do	$Mi^{\flat}$ / $Ré^{\#}$	$Sol^{\flat}$ / $Fa^{\#}$	Sol
$Sol^{\flat}$ / $Fa^{\#}$	$La^{\flat}$ / $Sol^{\#}$	$Si^{\flat}$ / $La^{\#}$	Si	$Ré^{\flat}$ / $Do^{\#}$	Ré	Fa	$Sol^{\flat}$ / $Fa^{\#}$
Fa	Sol	La	$La^{\flat}$ / $Sol^{\#}$	Do	Ré	Mi	Fa
Mi	$Sol^{\flat}$ / $Fa^{\#}$	$La^{\flat}$ / $Sol^{\#}$	Sol	Si	$Ré^{\flat}$ / $Do^{\#}$	$Mi^{\flat}$ / $Ré^{\#}$	Mi
$Mi^{\flat}$ / $Ré^{\#}$	Fa	$Sol^{\flat}$ / $Fa^{\#}$	Fa	$La^{\flat}$ / $Sol^{\#}$	Sol	La	$Mi^{\flat}$ / $Ré^{\#}$
Ré	Mi	$Mi^{\flat}$ / $Ré^{\#}$	Mi	$Si^{\flat}$ / $La^{\#}$	$La^{\flat}$ / $Sol^{\#}$	$Ré^{\flat}$ / $Do^{\#}$	Ré
$Ré^{\flat}$ / $Do^{\#}$	Ré	Fa	$Mi^{\flat}$ / $Ré^{\#}$	Fa	$Sol^{\flat}$ / $Fa^{\#}$	$Si^{\flat}$ / $La^{\#}$	$Ré^{\flat}$ / $Do^{\#}$
Do	$Ré^{\flat}$ / $Do^{\#}$	Sol	Ré	Sol	La	Si	Do
Si	Do	$Mi^{\flat}$ / $Ré^{\#}$	Fa	$Sol^{\flat}$ / $Fa^{\#}$	$La^{\flat}$ / $Sol^{\#}$	$Si^{\flat}$ / $La^{\#}$	Si
$Si^{\flat}$ / $La^{\#}$	Do	Ré	$Mi^{\flat}$ / $Ré^{\#}$	Fa	Sol	La	$Si^{\flat}$ / $La^{\#}$
La	Si	$Ré^{\flat}$ / $Do^{\#}$	Ré	Mi	$La^{\flat}$ / $Sol^{\#}$	$Si^{\flat}$ / $La^{\#}$	La
$La^{\flat}$ / $Sol^{\#}$	$Si^{\flat}$ / $La^{\#}$	Do	$Ré^{\flat}$ / $Do^{\#}$	$Mi^{\flat}$ / $Ré^{\#}$	Fa	Sol	$La^{\flat}$ / $Sol^{\#}$
Sol	La	$La^{\flat}$ / $Sol^{\#}$	Si	Do	$Mi^{\flat}$ / $Ré^{\#}$	$Sol^{\flat}$ / $Fa^{\#}$	Sol
$Sol^{\flat}$ / $Fa^{\#}$	$La^{\flat}$ / $Sol^{\#}$	$Si^{\flat}$ / $La^{\#}$	Si	$Ré^{\flat}$ / $Do^{\#}$	Ré	Fa	$Sol^{\flat}$ / $Fa^{\#}$
Fa	Sol	La	$La^{\flat}$ / $Sol^{\#}$	Do	Ré	Mi	Fa
Mi	$Sol^{\flat}$ / $Fa^{\#}$	$La^{\flat}$ / $Sol^{\#}$	Sol	Si	$Ré^{\flat}$ / $Do^{\#}$	$Mi^{\flat}$ / $Ré^{\#}$	Mi
$Mi^{\flat}$ / $Ré^{\#}$	Fa	$Sol^{\flat}$ / $Fa^{\#}$	Fa	$La^{\flat}$ / $Sol^{\#}$	Sol	La	$Mi^{\flat}$ / $Ré^{\#}$
Ré	Mi	$Mi^{\flat}$ / $Ré^{\#}$	Mi	$Si^{\flat}$ / $La^{\#}$	$La^{\flat}$ / $Sol^{\#}$	$Ré^{\flat}$ / $Do^{\#}$	Ré
$Ré^{\flat}$ / $Do^{\#}$	Ré	Fa	$Mi^{\flat}$ / $Ré^{\#}$	Fa	$Sol^{\flat}$ / $Fa^{\#}$	$Si^{\flat}$ / $La^{\#}$	$Ré^{\flat}$ / $Do^{\#}$
Do	Ré	Mi	Fa	Sol	La	Si	Do

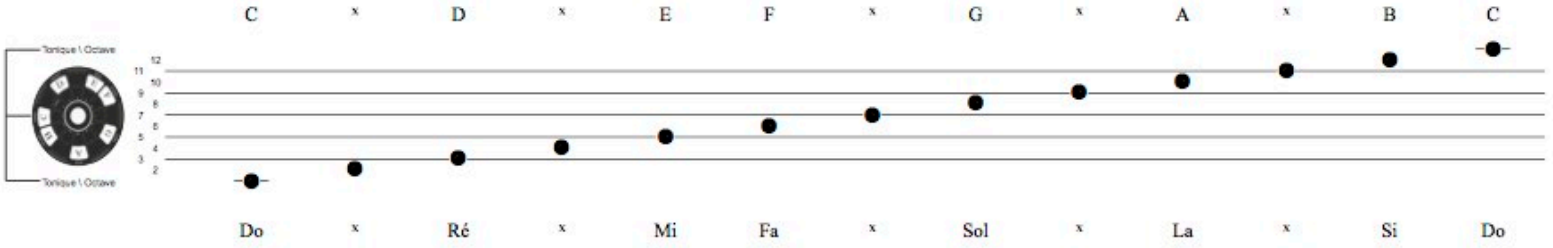
PARTIE B

C	D	E	F	G	A	B	C
B	$D^{\flat}$ / $C^{\#}$	$E^{\flat}$ / $D^{\#}$	E	$G^{\flat}$ / $F^{\#}$	$A^{\flat}$ / $G^{\#}$	$B^{\flat}$ / $A^{\#}$	B
$B^{\flat}$ / $A^{\#}$	C	D	$E^{\flat}$ / $D^{\#}$	F	G	A	$B^{\flat}$ / $A^{\#}$
A	$B^{\flat}$ / $A^{\#}$	$D^{\flat}$ / $C^{\#}$	D	E	$G^{\flat}$ / $F^{\#}$	$A^{\flat}$ / $G^{\#}$	A
$A^{\flat}$ / $G^{\#}$	A	C	$D^{\flat}$ / $C^{\#}$	$E^{\flat}$ / $D^{\#}$	F	G	$A^{\flat}$ / $G^{\#}$
G	$A^{\flat}$ / $G^{\#}$	B	C	D	$E^{\flat}$ / $D^{\#}$	$G^{\flat}$ / $F^{\#}$	G
$G^{\flat}$ / $F^{\#}$	G	$B^{\flat}$ / $A^{\#}$	B	C	D	E	$G^{\flat}$ / $F^{\#}$
F	$G^{\flat}$ / $F^{\#}$	A	$B^{\flat}$ / $A^{\#}$	B	C	D	F
E	F	$A^{\flat}$ / $G^{\#}$	A	$B^{\flat}$ / $A^{\#}$	B	C	E
$E^{\flat}$ / $D^{\#}$	E	G	$A^{\flat}$ / $G^{\#}$	A	$B^{\flat}$ / $A^{\#}$	B	$E^{\flat}$ / $D^{\#}$
D	$E^{\flat}$ / $D^{\#}$	F	G	$A^{\flat}$ / $G^{\#}$	A	$B^{\flat}$ / $A^{\#}$	D
$D^{\flat}$ / $C^{\#}$	D	E	F	G	$A^{\flat}$ / $G^{\#}$	$B^{\flat}$ / $A^{\#}$	$D^{\flat}$ / $C^{\#}$
C	$D^{\flat}$ / $C^{\#}$	$E^{\flat}$ / $D^{\#}$	E	$G^{\flat}$ / $F^{\#}$	$A^{\flat}$ / $G^{\#}$	$B^{\flat}$ / $A^{\#}$	C
B	$D^{\flat}$ / $C^{\#}$	$E^{\flat}$ / $D^{\#}$	E	$G^{\flat}$ / $F^{\#}$	$A^{\flat}$ / $G^{\#}$	$B^{\flat}$ / $A^{\#}$	B
$B^{\flat}$ / $A^{\#}$	C	D	$E^{\flat}$ / $D^{\#}$	F	G	A	$B^{\flat}$ / $A^{\#}$
A	$B^{\flat}$ / $A^{\#}$	$D^{\flat}$ / $C^{\#}$	D	E	$G^{\flat}$ / $F^{\#}$	$A^{\flat}$ / $G^{\#}$	A
$A^{\flat}$ / $G^{\#}$	A	C	$D^{\flat}$ / $C^{\#}$	$E^{\flat}$ / $D^{\#}$	F	G	$A^{\flat}$ / $G^{\#}$
G	$A^{\flat}$ / $G^{\#}$	B	C	D	$E^{\flat}$ / $D^{\#}$	$G^{\flat}$ / $F^{\#}$	G
$G^{\flat}$ / $F^{\#}$	G	$B^{\flat}$ / $A^{\#}$	B	C	D	E	$G^{\flat}$ / $F^{\#}$
F	$G^{\flat}$ / $F^{\#}$	A	$B^{\flat}$ / $A^{\#}$	B	C	D	F
E	F	$A^{\flat}$ / $G^{\#}$	A	$B^{\flat}$ / $A^{\#}$	B	C	E
$E^{\flat}$ / $D^{\#}$	E	G	$A^{\flat}$ / $G^{\#}$	A	$B^{\flat}$ / $A^{\#}$	B	$E^{\flat}$ / $D^{\#}$
D	$E^{\flat}$ / $D^{\#}$	F	G	$A^{\flat}$ / $G^{\#}$	A	$B^{\flat}$ / $A^{\#}$	D
$D^{\flat}$ / $C^{\#}$	D	E	F	G	$A^{\flat}$ / $G^{\#}$	$B^{\flat}$ / $A^{\#}$	$D^{\flat}$ / $C^{\#}$
C	D	E	F	G	A	B	C

Harmony of the spheres

Fig.4

Musical universal key
Musical Instrument Digital Interface



X = Diatonique (dièse/bémol(#/b))

X = Chromatonique (augmenter/diminuer(+/-))

Select and print at legal format the Fig.4b (image) then cut the two rulers along the lines shown and also cut the eight (8) windows that correspond to the intervals of music.

Then superimpose the part of the center on the top of the rule that suits you and position the 1st degree (Tonic) on the C, you will obtain the sequence

“ C-D-E-F-G-A-B-C ”

You can repeat the exercise in fig.3
or simply move the ruler by tone or semitone.

What is important here is that no matter the tone (tonal height) in which you play, the intervals will always be the same :

Major (which constitute the key frame of our tonal system) or minor.

Fig.4b

Cut

To fold

C	C
B	B
B^b $A^\#$	B^b $A^\#$
A	A
A^b $G^\#$	A^b $G^\#$
G	G
G^b $F^\#$	G^b $F^\#$
F	F
E	E
E^b $D^\#$	E^b $D^\#$
D	D
D^b $C^\#$	D^b $C^\#$
C	C

To fold

Use a plastic ruler as a support print the sheet in legal size

Cut

Universal musical Key

Octave	Cut
Cut	Seventh
Cut	Sixth
Fifth	Cut
Cut	Fourth
Third	Cut
Second	Cut
Tonic	Cut

Solfege

Above the ruler

Clé universelle musicale

Octave	Couper
Couper	Septième
Couper	Sixième
Quinte	Couper
Couper	Quarte
Tierce	Couper
Seconde	Couper
Tonique	Couper

Solfège

Dessus de la règle

Couper

Plier

Do	Do
Si	Si
Si^b $La^\#$	Si^b $La^\#$
La	La
La^b $Sol^\#$	La^b $Sol^\#$
Sol	Sol
Sol^b $Fa^\#$	Sol^b $Fa^\#$
Fa	Fa
Mi	Mi
Mi^b $Ré^\#$	Mi^b $Ré^\#$
Ré	Ré
$Ré^b$ $Do^\#$	$Ré^b$ $Do^\#$
Do	Do

Plier

Utiliser une règle en platique comme support imprimer la feuille en format légal

Couper

« HDS Tempered scale in Hz and guitar freetboard »

Fig.5

HARMONY OF THE SPHERES

Universal musical Key

HDS tempered scale Hz	440
Progression %	5,94630943592953

220,000000000000000000000000 | 261,6255653005990 | 349,2282314330040 | 440,000000000000000000000000

HDS	A		B	C		D		E	F		G		A	HDS
Do^{6}	**220**	233,082	246,942	261,626	277,183	293,665	311,127	329,628	349,228	369,994	391,995	415,305	440	Do^{7}
	La		Si	Do		Ré		Mi	Fa		Sol		La	

246,9416506280620 | 293,6647679174080 | 329,627556912870 | 391,9954359817490

Guitar Freetboard

Two opposites in perfect harmony

Progression %	5,94630943592953

Scale length - Mils - Échelle - Millièmes de pouces

Pont - Bridge | Sillet (Nut)

Centre - Center

Pont - Bridge					**6,000**	6,357	6,735	7,135	7,560	8,009	8,485	8,990	9,524	10,091	10,691	11,326	**12,000**	12,714	13,470	14,270	15,119	16,018	16,971	17,980	19,049	20,182	21,382	22,653	**24,000**	Sillet (Nut)
Pont - Bridge					**6,125**	6,489	6,875	7,284	7,717	8,176	8,662	9,177	9,723	10,301	10,914	11,562	**12,250**	12,978	13,750	14,568	15,434	16,352	17,324	18,354	19,446	20,602	21,827	23,125	**24,500**	Sillet (Nut)
Pont - Bridge					**6,250**	6,622	7,015	7,433	7,875	8,343	8,839	9,364	9,921	10,511	11,136	11,798	**12,500**	13,243	14,031	14,865	15,749	16,685	17,678	18,729	19,843	21,022	22,272	23,597	**25,000**	Sillet (Nut)
Pont - Bridge					**6,375**	6,754	7,156	7,581	8,032	8,510	9,016	9,552	10,120	10,721	11,359	12,034	**12,750**	13,508	14,311	15,162	16,064	17,019	18,031	19,103	20,239	21,443	22,718	24,069	**25,500**	Sillet (Nut)
Pont - Bridge					**6,500**	6,887	7,296	7,730	8,189	8,676	9,192	9,739	10,318	10,932	11,582	12,270	**13,000**	13,773	14,592	15,460	16,379	17,353	18,385	19,478	20,636	21,863	23,163	24,541	**26,000**	Sillet (Nut)

Tempered scale and various frequency of A

Fig.5b

HDS temperate scale Hz	
Progression %	5,94630943592953

HDS	C		D		E	F		G		A		B	C	HDS
Do^{12}	**16744**	17739,688	18794,545	19912,127	21096,164	22350,607	23679,643	25087,708	26579,501	28160	29834,481	31608,531	**33488**	Do^{13}
Do^{11}	**8372**	8869,844	9397,273	9956,063	10548,082	11175,303	11839,822	12543,854	13289,750	14080	14917,240	15804,266	**16744**	Do^{12}
Do^{10}	**4186**	4434,922	4698,636	4978,032	5274,041	5587,652	5919,911	6271,927	6644,875	7040	7458,620	7902,133	**8372**	Do^{11}
Do^{9}	**2093**	2217,461	2349,318	2489,016	2637,020	2793,826	2959,955	3135,963	3322,438	3520	3729,310	3951,066	**4186**	Do^{10}
Do^{8}	**1046,50**	1108,731	1174,659	1244,508	1318,510	1396,913	1479,978	1567,982	1661,219	1760	1864,655	1975,533	**2093**	Do^{9}
Do^{7}	**523,25**	554,365	587,330	622,254	659,255	698,456	739,989	783,991	830,609	880	932,328	987,767	**1046,50**	Do^{8}
Do^{6}	**261,63**	277,1826	293,66	311,13	329,63	349,23	369,99	392,00	415,30	440	466,16	493,88	**523,25**	Do^{7}
Do^{5}	**130,81**	138,59	146,83	155,56	164,81	174,61	185,00	196,00	207,65	220,00	233,08	246,94	**261,63**	Do^{6}
Do^{4}	**65,41**	69,30	73,42	77,78	82,41	87,31	92,50	98,00	103,83	110,00	116,54	123,47	**130,81**	Do^{5}
Do^{3}	**32,70**	34,65	36,71	38,89	41,20	43,65	46,25	49,00	51,91	55,00	58,27	61,74	**65,41**	Do^{4}
Do^{2}	**16,35**	17,32	18,35	19,45	20,60	21,83	23,12	24,50	25,96	27,50	29,14	30,87	**32,70**	Do^{3}
Do^{1}	**8,18**	8,66	9,18	9,72	10,30	10,91	11,56	12,25	12,98	13,75	14,57	15,43	**16,35**	Do^{2}

Champ auditif
440,000000000000000000000000

HDS temperate scale Hz	
Progression %	5,94630943592953

HDS	C		D		E	F		G		A		B	C	HDS
Do^{12}	**16820,15**	17820,32	18879,97	20002,64	21192,06	22452,20	23787,28	25201,74	26700,32	28288,00	29970,09	31752,21	**33640,29**	Do^{13}
Do^{11}	**8410,07**	8910,16	9439,99	10001,32	10596,03	11226,10	11893,64	12600,87	13350,16	14144,00	14985,05	15876,10	**16820,15**	Do^{12}
Do^{10}	**4205,04**	4455,08	4719,99	5000,66	5298,01	5613,05	5946,82	6300,44	6675,08	7072,00	7492,52	7938,05	**8410,07**	Do^{11}
Do^{9}	**2102,52**	2227,54	2360,00	2500,33	2649,01	2806,53	2973,41	3150,22	3337,54	3536,00	3746,26	3969,03	**4205,04**	Do^{10}
Do^{8}	**1051,26**	1113,77	1180,00	1250,16	1324,50	1403,26	1486,70	1575,11	1668,77	1768,00	1873,13	1984,51	**2102,52**	Do^{9}
Do^{7}	**525,630**	556,89	590,00	625,08	662,25	701,63	743,35	787,55	834,38	884,00	936,57	992,26	**1051,26**	Do^{8}
Do^{6}	**262,815**	278,44	295,00	312,54	331,13	350,82	371,68	393,78	417,19	442	468,28	496,13	**525,630**	Do^{7}
Do^{5}	**131,41**	139,22	147,50	156,27	165,56	175,41	185,84	196,89	208,60	221,00	234,14	248,06	**262,815**	Do^{6}
Do^{4}	**65,70**	69,61	73,75	78,14	82,78	87,70	92,92	98,44	104,30	110,50	117,07	124,03	**131,41**	Do^{5}
Do^{3}	**32,85**	34,81	36,87	39,07	41,39	43,85	46,46	49,22	52,15	55,25	58,54	62,02	**65,70**	Do^{4}
Do^{2}	**16,43**	17,40	18,44	19,53	20,70	21,93	23,23	24,61	26,07	27,63	29,27	31,01	**32,85**	Do^{3}
Do^{1}	**8,213**	8,70	9,22	9,77	10,35	10,96	11,61	12,31	13,04	13,81	14,63	15,50	**16,43**	Do^{2}

Champ auditif
442,000000000000000000000000

*****

HDS temperate scale Hz	
Progression %	5,94630943592953

HDS	C		D		E	F		G		A		B	C	HDS
Do^{12}	**16896**	17900,96	18965,40	20093,15	21287,95	22553,79	23894,91	25315,78	26821,13	28416	30105,70	31895,88	**33793**	Do^{13}
Do^{11}	**8448**	8950,48	9482,70	10046,57	10643,97	11276,90	11947,46	12657,89	13410,57	14208	15052,85	15947,94	**16896**	Do^{12}
Do^{10}	**4224**	4475,24	4741,35	5023,29	5321,99	5638,45	5973,73	6328,94	6705,28	7104	7526,43	7973,97	**8448**	Do^{11}
Do^{9}	**2112**	2237,62	2370,68	2511,64	2660,99	2819,22	2986,86	3164,47	3352,64	3552	3763,21	3986,99	**4224**	Do^{10}
Do^{8}	**1056**	1118,81	1185,34	1255,82	1330,50	1409,61	1493,43	1582,24	1676,32	1776	1881,61	1993,49	**2112**	Do^{9}
Do^{7}	**528**	559,40	592,67	627,91	665,25	704,81	746,72	791,12	838,16	888	940,80	996,75	**1056**	Do^{8}
Do^{6}	**264**	279,70	296,33	313,96	332,62	352,40	373,36	395,56	419,08	444	470,40	498,37	**528**	Do^{7}
Do^{5}	**132**	139,85	148,17	156,98	166,31	176,20	186,68	197,78	209,54	222	235,20	249,19	**264**	Do^{6}
Do^{4}	**66**	69,93	74,08	78,49	83,16	88,10	93,34	98,89	104,77	111	117,60	124,59	**132**	Do^{5}
Do^{3}	**33**	34,96	37,04	39,24	41,58	44,05	46,67	49,44	52,39	55,50	58,80	62,30	**66**	Do^{4}
Do^{2}	**16,50**	17,48	18,52	19,62	20,79	22,03	23,33	24,72	26,19	27,75	29,40	31,15	**33**	Do^{3}
Do^{1}	**8,25**	8,74	9,26	9,81	10,39	11,01	11,67	12,36	13,10	13,88	14,70	15,57	**16,50**	Do^{2}

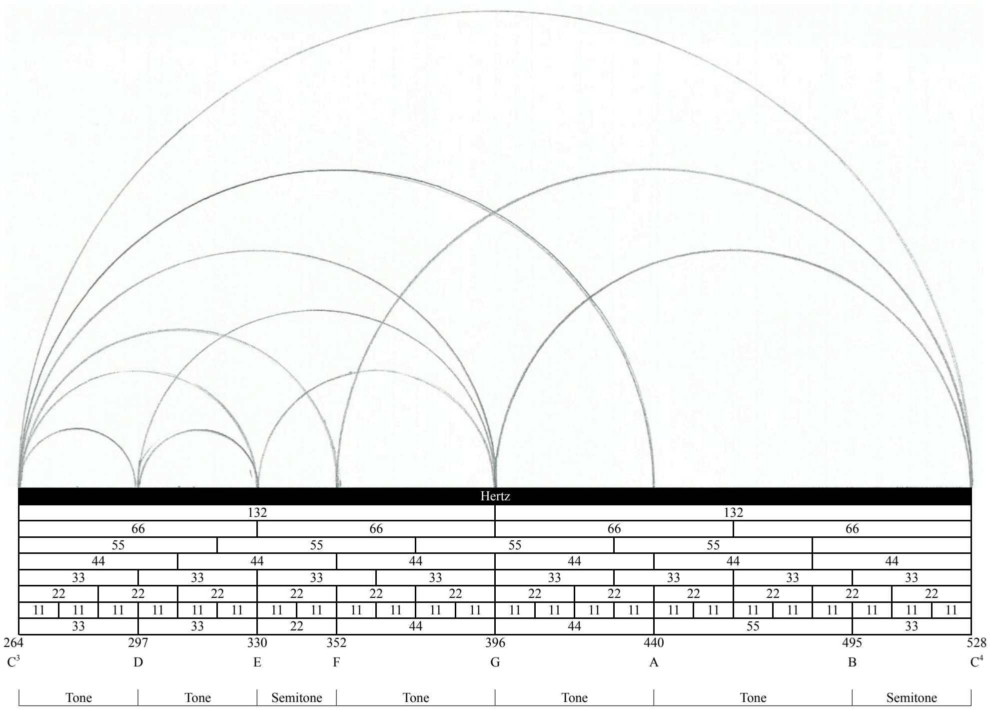
Champ auditif
444,000000000000000000000000

*** For more details on temperate scale see the section R/D

Pythagore and the harmony of the spheres

Fig.7 HARMONY OF THE SPHERES

MUSICAL UNIVERSAL KEY



HDS Universal Proportion

1,125 | * 1,111 | 1,066666667 | 1,125 | * 1,111 | 1,125 | 1,066666667

1,250 | 1,250

1,250

1,500 | 1,333333333

1,666666667 | 1,2

1,333333333 | 1,500

1,250 | 1,6

1,875 | 1,066666667

HDS Fraction Pythagorean

1 1/8

1 1/4

1 1/3

1 1/2

1 2/3

1 7/8

2

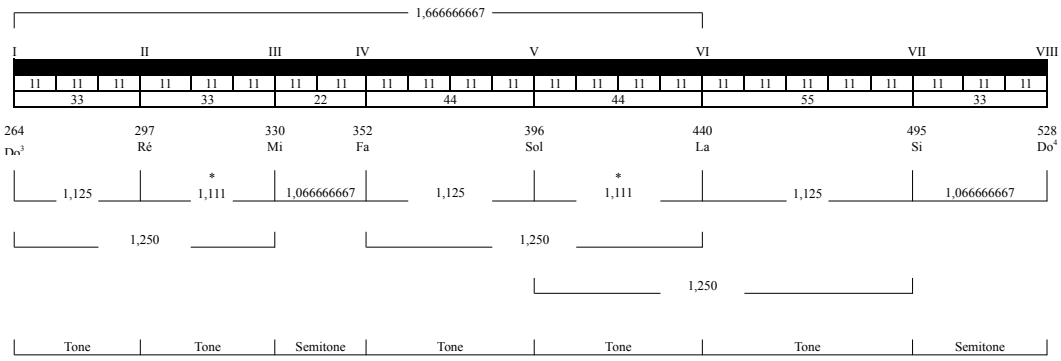
For more details on natural harmonics see the section R/D

« Natural Harmonics »

Fig.7a

NATURAL HARMONICS

Starting from the fact that the natural resonance (harmonics) of each note are relatively all multiples of each of them
and the frequency (Hz) is given by the simple arithmetic operation of fundamental sound F^0 multiplication by the rank number of it



	11	X	=		
	11	1	11		
	11	2	22		
	11	3	33		
	11	4	44		
	11	5	55		
	11	6	66		
	11	7	77		
	11	8	88		
	11	9	99		
	11	10	110		
	11	11	121		
	11	12	132		
	11	13	143		
	11	14	154		
	11	15	165		
	11	16	176		
	11	17	187		
	11	18	198		
	11	19	209		
	11	20	220		
	11	21	231		
	11	22	242		
	11	23	253		
Octave	11	**24**	**264**	C	1
	11	25	275		2
	11	26	286		3
Second	11	**27**	**297**	D	4
	11	28	308		5
	11	29	319		6
Third	11	**30**	**330**	E	7
	11	31	341		8
Fourth	11	32	**352**	F	9
	11	33	363		10
	11	34	374		11
	11	35	385		12
Fifth	11	36	**396**	G	13
	11	37	407		14
	11	38	418		15
	11	39	429		16
Sixth	11	40	**440**	A	17
	11	41	451		18
	11	42	462		19
	11	43	473		20
	11	44	484		21
Seventh	11	45	**495**	B	22
	11	46	506		23
	11	47	517		24
Octave	11	48	**528**	C	25

For more details on natural harmonics see figures 6 and 7 section R/D

Note that the ratio between A 440 Hz and C 264 Hz has a proportion of

1.66666666666667

either: 440/264 = 1.66666666666667

this proportion will never change ... whatever the frequency chosen:

... 328 - 426,7 - 432 - 440 - 442- 444 ...

it's a good way to find your C

then divide it by 24 to get what I call the unit of measure.

P: S. The tuning frequency of A at 426.7 Hz also called Scientific range or Range of physicists, with a Do at 256 Hz

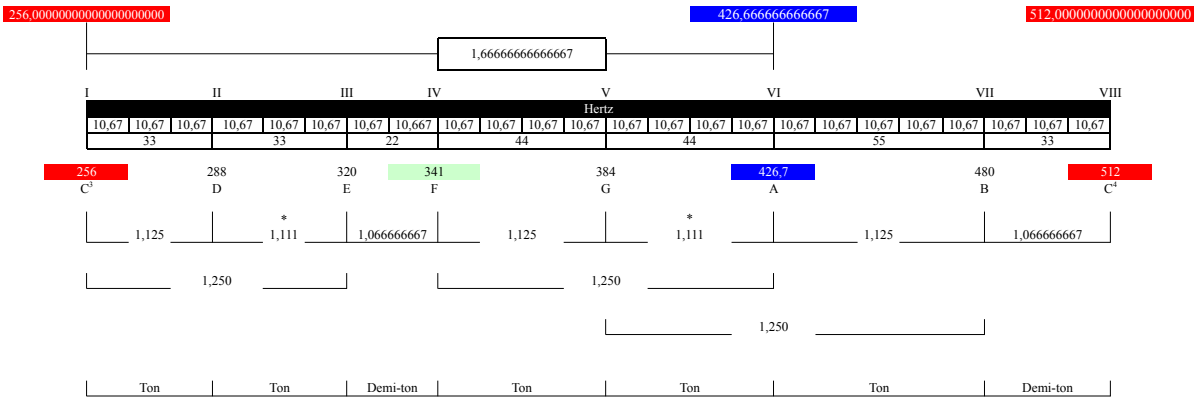
either : 426.6666666666667 / 256 = 1.666666666666666667.

Fig.7f

NATURAL HARMONICS

426,7 Hz

Starting from the fact that the natural resonance (harmonics) of each note are relatively all multiples of each of them
and the frequency (Hz) is given by the simple arithmetic operation of fundamental sound F0 multiplication by the rank number of it



10,6666666666667

10,67	X	=		
10,67	1	10,67		
10,67	2	21,33		
10,67	3	32		
10,67	4	42,67		
10,67	5	53,33		
10,67	6	64		
10,67	7	74,67		
10,67	8	85,33		
10,67	9	96		
10,67	10	106,7		
10,67	11	117,3		
10,67	12	128		
10,67	13	138,7		
10,67	14	149,3		
10,67	15	160		
10,67	16	170,7		
10,67	17	181,3		
10,67	18	192		
10,67	19	202,7		
10,67	20	213,3		
10,67	21	224		
10,67	22	234,7		
10,67	23	245,3		
Octave 10,67	**24**	**256**	C	1
10,67	25	266,7		2
10,67	26	277,3		3
Seconde 10,67	**27**	**288**	D	4
10,67	28	298,7		5
10,67	29	309,3		6
Tierce 10,67	**30**	**320**	E	7
10,67	31	330,7		8
Quarte 10,67	32	**341,3**	F	9
10,67	33	352		10
10,67	34	362,7		11
10,67	35	373,3		12
Quinte 10,67	36	**384**	G	13
10,67	37	394,7		14
10,67	38	405,3		15
10,67	39	416		16
Sixième 10,67	40	**426,7**	A	17
10,67	41	437,3		18
10,67	42	448		19
10,67	43	458,7		20
10,67	44	469,3		21
Septième 10,67	45	**480**	B	22
10,67	46	490,7		23
10,67	47	501,3		24
Octave 10,67	48	**512**	C	25

341,333333333334

426,666666666667

For more details on natural harmonics see figures 6 and 7 section R/D

Fig.7H

LES HARMONIQUES NATURELS - NATURAL HARMONICS

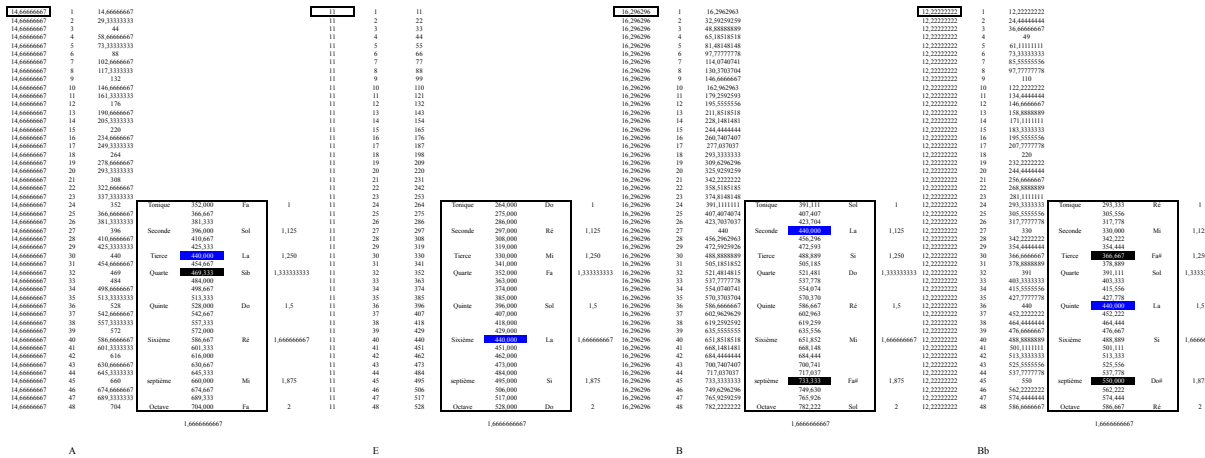
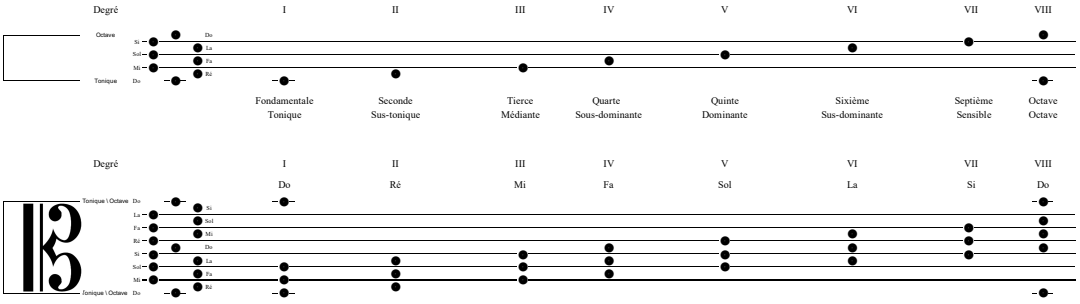


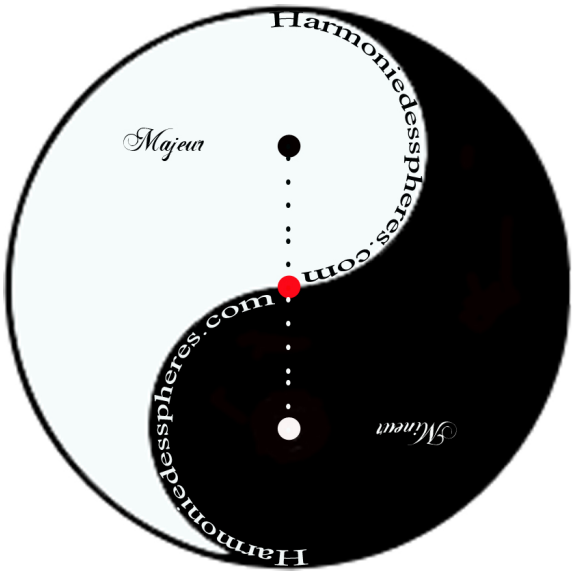
Fig.8

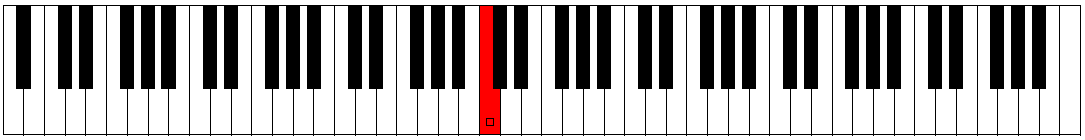
Harmonie des sphères

Clé universelle musicale

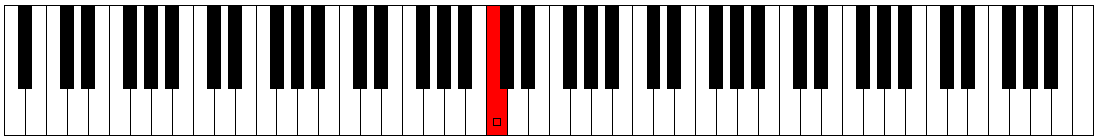
Le Diatonisme





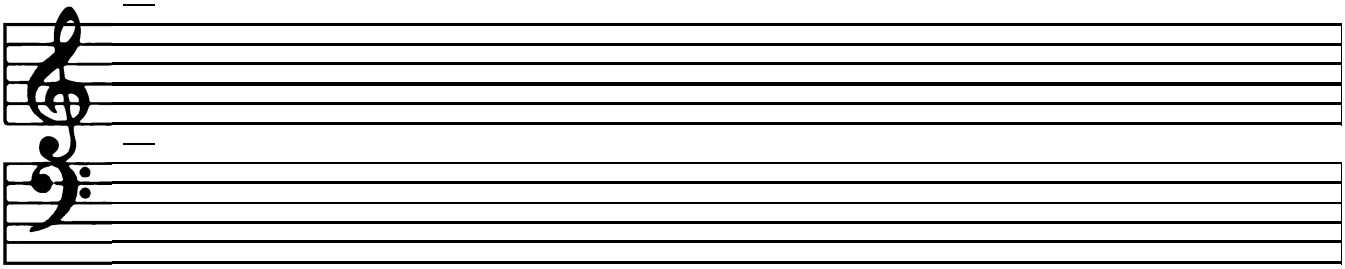


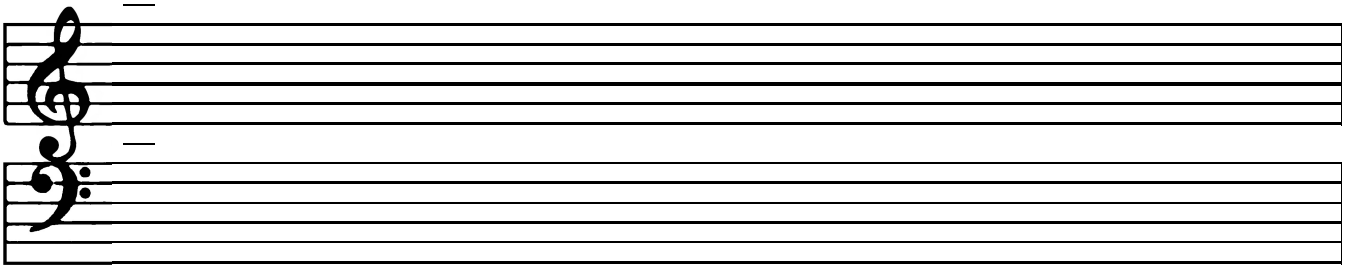
Titre: _____ Auteur: _____

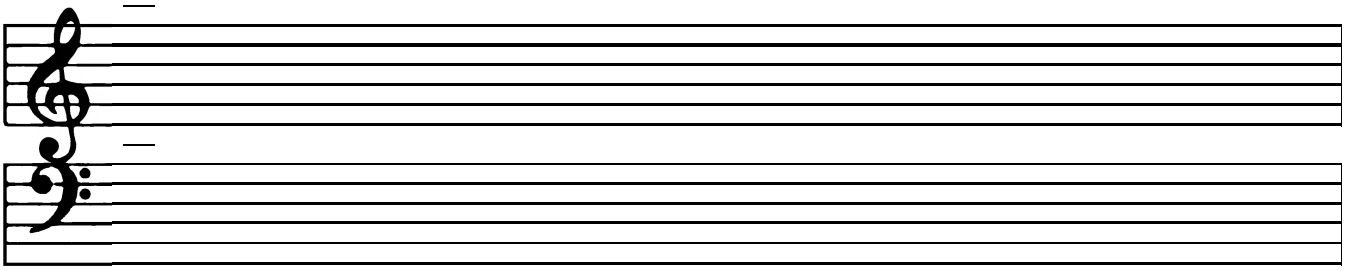


Titre: _____

Auteur: _____







Harmonie des sphères inc.

Mission

Promote the universal musical key throughout the world,

research and develop simple and accessible applications

to all, in order to facilitate the understanding of musical notions.

« Music it’s of space-time »

Sylvain Lalonde founding president : Harmonie des sphères inc.

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