

# Seminar Akustik und Intonation UdK Berlin



Tuning Light — Scriabin

# Tuning Light — Scriabin

## Koto

stringnumber 1 1 2 2 2 2 3 3 4 4 5 5 6 7 7 8 8 9 10 10 11 11 11 11 12 12 13 13

string bending +0 +27 +0 +31 +80 +102 +0 +32 +0 +32 +0 +22 +0 +0 +22 +0 +22 +0 +0 +22 +0 +27 +49 +81 +0 +32 +0 +27

cents -33 -6 +49 -19 +29 -49 +2 +34 +16 +47 -37 -16 +45 -51 -29 +12 +33 -16 -2 +20 -45 -18 +4 +36 +6 +38 -47 -20

in octave72

ratio 11:12 16:27 11:12 14:15 24:25 35:36 3:4 55:72 3:5 11:18 28:27 21:20 22:27 35:54 21:32 16:15 27:25 5:6 2:3 27:40 35:32 10:9 9:8 55:48 27:32 55:64 35:48 20:27  
(1:1 = a1 = 440 Hz)

in Just Intonation

cents -33 -6 -19 -49 -37 -16 -51 -29 -16 -2 -45 -18 -47 -20

## Violine

## Viola

## Violoncello

in octave72

693:512 231:256 77:128 77:192 33:32 11:16 11:24 11:36 495:1024 165:512 55:256 55:384

in Just Intonation

# Tuning Light — Scriabin

Seminar Akustik und Intonation  
UdK Berlin 2011

♩ = 126 molto rubato

Sopransaxophon  
in B

ppp

Klarinette  
in B

ppp

Keyboard

freie Repetitionen (♩-raster)

pp

Dirigent  
Trigger Max5

\*) Luce 1 (mute)<sub>1</sub> 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

8 \*) aus Töne aus Alexander Skrjabin Prometheus: Le Poem du feu, Op. 60, clavier à luce

Koto

\*) Luce 2 freie Repetitionen (♩-raster)

p

Violine

con sordino

pp

Viola

con sordino

pp

Violoncello

con sordino

pp

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

8

Detailed description: This is a page of a musical score for a woodwind and string ensemble. It features eight staves. The top four staves are for S.-Sax. in B, Klar. in B, Keyb., and Trig. The bottom four staves are for Kt., Vln., Vla., and Kb. The Trig. staff includes measure numbers 17 through 32. The Keyb. staff has a '8' below the first measure. The Kt. staff has '12' and '6' below the notes. The Vln. and Vla. staves have a brace on the left. The Kb. staff has a brace on the left. The music is written in treble clef for the top four staves and bass clef for the bottom four staves. The key signature has one sharp (F#). The score contains various musical notations including notes, rests, and articulation marks.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

1 9 6 12 12 6 9 12 12 12 6 2 2 4 2 2

Detailed description: This is a page of a musical score for a concert band or orchestra. It contains eight staves of music. The instruments are: S.-Sax. in B (Soprano Saxophone), Klar. in B (Clarinet), Keyb. (Keyboard), Trig. (Trumpet), Kt. (Kettledrum), Vln. (Violin), Vla. (Viola), and Kb. (Cello). The score is written in treble clef for most instruments and bass clef for the cello. The key signature has one sharp (F#). The time signature is not explicitly shown but appears to be 4/4. The measures are numbered 33 through 48. The S.-Sax. part has a melodic line with some rests. The Klar. part has a similar melodic line. The Keyb. part provides harmonic support with chords and single notes. The Trig. part has a rhythmic line with some accidentals. The Kt. part has a rhythmic line with various note values and rests. The Vln. part has a melodic line with some rests. The Vla. part has a melodic line with some rests. The Kb. part has a melodic line with some rests.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64

Detailed description: This is a page of a musical score for page 4. It features seven staves for different instruments: S.-Sax. in B, Klar. in B, Keyb., Trig., Kt., Vln., Vla., and Kb. The Trig. staff includes measure numbers 49 through 64. The score is written in a common time signature and includes various musical notations such as notes, rests, and accidentals.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Detailed description: This is a page of a musical score for page 5. It features eight staves for different instruments: S.-Sax. in B, Klar. in B, Keyb., Trig., Kt., Vln., Vla., and Kb. The score is written in a common time signature. The S.-Sax. and Klar. parts have a melodic line with some accidentals. The Keyb. part has a similar melodic line with many sharps. The Trig. part has a rhythmic line with measure numbers 65 through 80 written above each measure. The Kt. part has a rhythmic line with notes and rests. The Vln. part has a melodic line with notes and rests. The Vla. part has a rhythmic line with notes and rests. The Kb. part has a rhythmic line with notes and rests.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96

Detailed description: This is a page of a musical score, page 6, containing measures 81 through 96. The score is arranged in a system with seven staves. The instruments are: S.-Sax. in B (Soprano Saxophone), Klar. in B (Clarinet), Keyb. (Keyboard), Trig. (Trumpet), Kt. (Kettledrum), Vln. (Violin), Vla. (Viola), and Kb. (Cello). The S.-Sax., Klar., and Trig. staves are in treble clef. The Kt. staff is in treble clef with a 4/8 time signature. The Vln., Vla., and Kb. staves are in treble, alto, and bass clefs respectively. The Trig. staff has measure numbers 81-96 written below it. The music consists of various notes, rests, and articulation marks across the measures.



S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112

56 11 12 11 12 8 8 8 8 5 8 4 8 1 1 4 6

Detailed description: This is a page of a musical score for measures 97 through 112. The score is arranged in a system with seven staves. From top to bottom, the staves are: S.-Sax. in B (Soprano Saxophone), Klar. in B (Clarinete), Keyb. (Keyboard), Trig. (Triangle), Kt. (Kettel), Vln. (Violine), Vla. (Viola), and Kb. (Kontrabaß). The S.-Sax. staff has a treble clef and contains notes with various accidentals (sharps, flats, naturals) and rests. The Klar. staff also has a treble clef and contains notes with accidentals. The Keyb. staff has a treble clef and contains chords and single notes with accidentals. The Trig. staff has a treble clef and contains single notes with accidentals. The Kt. staff has a treble clef and contains notes with accidentals and some numbers (56, 11, 12, 11, 12, 8, 8, 8, 8, 5, 8, 4, 8, 1, 1, 4, 6) written below the notes. The Vln. staff has a treble clef and contains notes with accidentals. The Vla. staff has an alto clef and contains notes with accidentals. The Kb. staff has a bass clef and contains notes with accidentals. The measure numbers 97 through 112 are written below the Trig. staff.

Musical score for measures 113-128, featuring S.-Sax., Klar., Keyb., Trig., Kt., Vln., Vla., and Kb.

The score is written for the following instruments:

- S.-Sax. in B
- Klar. in B
- Keyb.
- Trig.
- Kt.
- Vln.
- Vla.
- Kb.

The measures are numbered 113 through 128. The notation includes various musical symbols such as notes, rests, and articulation marks.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144

Detailed description: This is a page of a musical score for a concert band or orchestra. It contains eight staves. The top staff is for Soprano Saxophone in B (S.-Sax. in B), the second for Clarinet in B (Klar. in B), the third for Keyboard (Keyb.), the fourth for Triangle (Trig.), the fifth for Trumpet (Kt.), the sixth for Violin (Vln.), the seventh for Viola (Vla.), and the eighth for Cello (Kb.). The score covers measures 129 to 144. The key signature has one flat (B-flat), and the time signature is 4/4. The S.-Sax. and Keyb. parts have a melodic line with some grace notes. The Klar. part has a similar melodic line. The Trig. part has a rhythmic pattern of eighth notes. The Kt. part has a rhythmic pattern of eighth notes with accents. The Vln., Vla., and Kb. parts have a harmonic accompaniment.

S.-Sax.  
in B

Klar.  
in B

Keyb.

Trig.  
8

Kt.

Vln.

Vla.

Kb.

145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160

Detailed description: This page of a musical score covers measures 145 to 160. It features seven staves: S.-Sax. in B, Klar. in B, Keyb., Trig. (marked with an 8), Kt., Vln., and Vla. The Kt. staff includes fingering numbers (4, 2, 3, 4, 1, 4, 1, 4, 4, 1, 4, 4) and a 3/4 time signature. The Trig. staff has measure numbers 145-160 written above it. The Vln. and Vla. staves show various rhythmic patterns and articulations. The Kb. staff has a consistent rhythmic pattern of eighth notes.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176

Detailed description: This page of a musical score covers measures 161 to 176. It features seven staves: S.-Sax. in B (Soprano Saxophone), Klar. in B (Clarinet), Keyb. (Keyboard), Trig. (Trumpet), Kt. (Trumpet), Vln. (Violin), Vla. (Viola), and Kb. (Cello/Double Bass). The S.-Sax. staff has a key signature change to one flat (B-flat) at measure 170. The Trig. staff includes fingering numbers (1, 4, 2, 1, 2) above notes in measures 161-165 and 170. The Kt. staff includes fingering numbers (1, 4, 2, 1, 2) above notes in measures 161-165 and 170. The Vln. staff has a key signature change to one flat at measure 170. The Vla. and Kb. staves have a key signature change to one flat at measure 170. The music consists of various rhythmic patterns, including eighth and sixteenth notes, and rests.

Musical score for measures 177-192, featuring S.-Sax., Klar., Keyb., Trig., Kt., Vln., Vla., and Kb.

**S.-Sax. in B:** Treble clef, rests in measures 177-181, then eighth notes with accidentals (B-flat, B-natural, B-flat) in measures 182-183, followed by quarter notes in measures 184-192.

**Klar. in B:** Treble clef, rests in measures 177-181, then eighth notes with accidentals (B-flat, B-natural, B-flat) in measures 182-183, followed by quarter notes in measures 184-192.

**Keyb.:** Treble clef, rests in measures 177-181, then eighth notes with accidentals (B-natural, B-flat) in measures 182-183, followed by quarter notes in measures 184-192.

**Trig.:** Treble clef, eighth notes in measures 177-181, then quarter notes with accidentals (B-natural, B-flat) in measures 182-192.

**Kt.:** Treble clef, eighth notes with fingering (7, 10) in measures 177-181, then quarter notes with fingering (7, 9) in measure 182, and quarter notes with fingering (7, 10) in measures 183-192.

**Vln.:** Treble clef, eighth notes in measures 177-181, then quarter notes with accidentals (B-natural, B-flat) in measures 182-192.

**Vla.:** Bass clef, eighth notes in measures 177-181, then quarter notes with accidentals (B-natural, B-flat) in measures 182-192.

**Kb.:** Bass clef, eighth notes in measures 177-181, then quarter notes with accidentals (B-natural, B-flat) in measures 182-192.

This musical score page contains seven staves for measures 193 through 208. The instruments are S.-Sax. in B, Klar. in B, Keyb., Trig., Kt., Vln., Vla., and Kb. The score is written in treble clef with a key signature of one flat (B-flat). The Trig. staff includes measure numbers 193-208 and a '8' below the first measure. The Kt. staff includes fingering numbers (1, 7, 10, 4, 7, 10, 7, 10, 7, 10, 7, 10, 7, 10) above the notes. The Vln. staff includes a first ending bracket over measures 195-197. The Vla. and Kb. staves are in bass clef.

Musical score for measures 209-224, featuring S.-Sax., Klar., Keyb., Trig., Kt., Vln., Vla., and Kb.

The score is written for the following instruments:

- S.-Sax. in B
- Klar. in B
- Keyb.
- Trig.
- Kt.
- Vln.
- Vla.
- Kb.

The score is in 4/4 time and consists of 16 measures. The key signature is one flat (B-flat major or D minor). The measures are numbered 209 through 224. The notation includes various note values, rests, and articulation marks. The Trig. part includes fingerings (8) and measure numbers (209-224) written below the notes. The Kt. part includes fingerings (2, 7, 4, 7, 7, 10, 4, 10, 2, 7, 10, 10, 7, 7, 4, 10) written below the notes. The Vln. part includes fingerings (4, 2) written above the notes. The Vla. part includes fingerings (1, 1) written above the notes. The Kb. part includes fingerings (1, 1) written below the notes.



S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240

Detailed description: This is a page of a musical score for page 15, containing measures 225 through 240. The score is arranged in a system with seven staves. The instruments are: S.-Sax. in B (Soprano Saxophone), Klar. in B (Clarinet), Keyb. (Keyboard), Trig. (Trumpet), Kt. (Trumpet), Vln. (Violin), Vla. (Viola), and Kb. (Cello). The S.-Sax., Klar., and Keyb. staves are in treble clef. The Trig. staff is in treble clef with a key signature of one sharp (F#). The Kt. staff is in treble clef with a key signature of one sharp (F#). The Vln. staff is in treble clef. The Vla. staff is in alto clef. The Kb. staff is in bass clef. The score includes various musical notations such as notes, rests, and articulation marks. Measure numbers 225 through 240 are printed below the Trig. staff.

Musical score for measures 241-256, featuring S.-Sax., Klar., Keyb., Trig., Kt., Vln., Vla., and Kb.

The score is written for the following instruments:

- S.-Sax. in B
- Klar. in B
- Keyb.
- Trig.
- Kt.
- Vln.
- Vla.
- Kb.

The measures are numbered 241 through 256. The notation includes various rhythmic values, accidentals, and articulation marks. The key signature is one flat (B-flat), and the time signature is 4/4.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272

8

7 13 3 3 3 3 3 13 4 13 13 9 3 3 1 13 13 1 3

Detailed description: This page of a musical score covers measures 257 to 272. It features seven staves: S.-Sax. in B (Soprano Saxophone), Klar. in B (Clarinet), Keyb. (Keyboard), Trig. (Triangle), Kt. (Kettledrum), Vln. (Violin), Vla. (Viola), and Kb. (Cello). The S.-Sax. and Klar. parts are in treble clef with a key signature of one sharp (F#). The Keyb. part is in treble clef with a key signature of one flat (Bb). The Trig. part is in treble clef with a key signature of one sharp (F#). The Kt. part is in treble clef with a key signature of one sharp (F#). The Vln. part is in treble clef with a key signature of one sharp (F#). The Vla. part is in bass clef with a key signature of one sharp (F#). The Kb. part is in bass clef with a key signature of one sharp (F#). The Trig. part includes measure numbers 257 through 272. The Kt. part includes performance markings such as 7/13, 3, 3, 3/4, 3, 13, 4, 13, 13, 9, 3, 3, 1, 13, 13, 1, 3. The Vln. part includes performance markings such as 7, 13, 1, 3, 1, 13, 13, 1, 3.

Musical score for measures 273-288, featuring S.-Sax., Klar., Keyb., Trig., Kt., Vln., Vla., and Kb.

**S.-Sax. in B:** Treble clef, key signature of one sharp (F#). Measures 273-288.

**Klar. in B:** Treble clef, key signature of one sharp (F#). Measures 273-288.

**Keyb.:** Treble clef, key signature of one sharp (F#). Measures 273-288.

**Trig.:** Treble clef, key signature of one sharp (F#). Measures 273-288.

**Kt.:** Treble clef, key signature of one sharp (F#). Measures 273-288. Includes fingerings: 3, 10, 13, 3, 13, 3, 3, 2, 3, 10, 13, 3, 2, 3, 13, 3, 13.

**Vln.:** Treble clef, key signature of one sharp (F#). Measures 273-288.

**Vla.:** Bass clef, key signature of one sharp (F#). Measures 273-288.

**Kb.:** Bass clef, key signature of one sharp (F#). Measures 273-288.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304

Detailed description: This is a page of a musical score for page 19. It features seven staves for different instruments: S.-Sax. in B, Klar. in B, Keyb., Trig., Kt., Vln., and Kb. The score covers measures 289 to 304. The S.-Sax. and Klar. parts are in treble clef with a key signature of one sharp (F#). The Keyb. part is in treble clef with a key signature of one sharp. The Trig. part is in treble clef with a key signature of one sharp. The Kt. part is in treble clef with a key signature of one sharp. The Vln. part is in treble clef with a key signature of one sharp. The Vla. part is in bass clef with a key signature of one sharp. The Kb. part is in bass clef with a key signature of one sharp. The Trig. part has measure numbers 289 through 304 written below the staff. The Kt. part has measure numbers 13, 13, 6, 12, 12, 6, 12, 12 written below the staff. The Vln. part has measure numbers 13, 13, 6, 12, 12, 6, 12, 12 written below the staff. The Vla. part has measure numbers 13, 13, 6, 12, 12, 6, 12, 12 written below the staff. The Kb. part has measure numbers 13, 13, 6, 12, 12, 6, 12, 12 written below the staff.

S.-Sax. in B

Klar. in B

Keyb.

Trig.

Kt.

Vln.

Vla.

Kb.

305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320

2.  
10

12 9 6 12 6 12 6 6 12 12 6 6 9 12

2

Detailed description: This is a page of a musical score for page 20. It features eight staves: S.-Sax. in B, Klar. in B, Keyb., Trig., Kt., Vln., Vla., and Kb. The Trig. staff includes measure numbers 305 through 320. The Kt. staff has a 2. (second ending) bracket over measures 305-310 and a 2. (second ending) bracket over measures 319-320. The Kt. staff also contains a 10 below the first measure and a series of numbers (12, 9, 6, 12, 6, 12, 6, 6, 12, 12, 6, 6, 9, 12) below the notes, likely indicating fingerings or articulation. The score is written in treble clef for most instruments and bass clef for the keyboard and viola.

S.-Sax.  
in B

Klar.  
in B

Keyb.

Trig.  
8

321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336

Kt.

Vln.

Vla.

Kb.

Detailed description: This is a page of a musical score for page 21. It features eight staves. The top four staves are for S.-Sax. in B, Klar. in B, Keyb., and Trig. (with an 8 below the staff). The Trig. staff contains a sequence of notes numbered 321 through 336. The fifth staff is for Kt. (Trumpet), with a 6 below the staff and a 2 above the staff. The bottom three staves are for Vln. (Violin), Vla. (Viola), and Kb. (Cello). The score includes various musical notations such as notes, rests, and accidentals.

Musical score for measures 337-352, featuring S.-Sax., Klar., Keyb., Trig., Kt., Vln., Vla., and Kb.

The score is written for the following instruments:

- S.-Sax. in B
- Klar. in B
- Keyb.
- Trig.
- Kt.
- Vln.
- Vla.
- Kb.

The measures are numbered 337 through 352. The key signature is one sharp (F#). The time signature is 12/8. The score includes various musical notations such as notes, rests, and articulation marks.



Musical score for measures 353-368, featuring the following instruments:

- S.-Sax. in B
- Klar. in B
- Keyb.
- Trig.
- Kt.
- Vln.
- Vla.
- Kb.

The score is written in treble clef with a key signature of one sharp (F#). The measures are numbered 353 through 368. The instrumentation includes Saxophone, Clarinet, Keyboard, Triangle, Trumpet, Violin, Viola, and Cello/Double Bass.

S.-Sax.  
in B

Klar.  
in B

Keyb.

Trig.  
8

Kt.  
6 12 6 9 10 12 6 12 6 9 10 12 6 12 6

Vln.

Vla.

Kb.

369 370 371 372 373 374 375 376 377 378 379 380 381 382 383

Detailed description: This is a page of a musical score for a symphony orchestra, numbered 24. It contains eight staves of music. The instruments are: S.-Sax. in B (Soprano Saxophone), Klar. in B (Clarinet), Keyb. (Keyboard), Trig. (Triangle), Kt. (Kettledrums), Vln. (Violin), Vla. (Viola), and Kb. (Cello). The score is written in a key signature of one sharp (F#) and a common time signature (C). The measures are numbered 369 through 383. The S.-Sax. part features a melodic line with various note values and rests. The Klar. part provides a harmonic accompaniment. The Keyb. part has a complex texture with many chords and arpeggios. The Trig. part consists of a simple rhythmic pattern. The Kt. part has a rhythmic pattern with specific dynamics and articulation. The Vln., Vla., and Kb. parts provide a rich harmonic and rhythmic foundation.