

## Marina Khorkova's Compositional Practices: Research, Language, Techniques)

### 1. «Composing means building an instrument and playing it»<sup>1</sup>

With this expression, the composer Helmut Lachenmann metaphorizes the process of composing as the building of an imaginary instrument that has its own sonic and motor qualities. The composer, discovering the instrument, is building it in its entirety, reflecting on the means used and those that have yet to be shaped/in the process of being shaped. The means are for Lachenmann the first point of reflection for the composer, the «musical material in a strict sense, the reserve of possibilities to which the composer turns, the socialized toolkit of sounds, structures, times, sound sources» [LACHENMANN – RIHM 2010, 80-93] that becomes the «tentacular monster that wraps around himself and wraps around everything that I called elsewhere aesthetic apparatus. » [*ibidem*] Marina Khorkova's *aesthetic apparatus*, using the Lachenmannian conceptual term to get closer to the compositional world of Berlin-based Russian composer, can be seen as an organism that generates «sonic landscapes [that] tend[s] to be dominated more by metallic severity, inhospitable frequencies and raw threatening noises than by tenderly whispered overtones» [WIESCHOLLEK 2016], an organism born by the building of both metaphorical and physical instruments. Her musical practice focuses on the sonic means, reflecting on the extensions of the possibilities of a traditional instrument and on the interactions between the instrument with itself and the others, led by the needs of transcribing her musical imaginary. Marina Khorkova began her studies in composition at the Tchaikovsky Conservatory in Moscow. During her studies, she worked at the State Conservatory for Music and Performing Arts in Stuttgart with Caspar Johannes Walter, and has been awarded stipends from the Paul Sacher Stiftung Basel, where she studied Helmut Lachenmann's works<sup>2</sup>. Her music is at the moment little documented<sup>3</sup>, («little documented» is a bit awkward in English, though it works completely fine in Italian. I would go with something more along the lines of, «Her music has not received a great deal of scholarly attention» or «Her music is currently understudied» or «There has not been considerable documentation...») and her scores have not been published. The Edition Zeitgenossische Music published a double CD monography of her works in 2016.

The composer's study of the organological qualities of the instrument seen as an apparatus, the appropriation and personalization of these qualities, and the research on the technology of the musical means, offer the composer a larger palette of sounds to shape a musical. This practice of exploration and expansion of the sonic possibilities refers to what Giovanni Verrando calls *New lutherie*<sup>4</sup>. One of the phenomena evoked by the concept of *New lutherie* is the virtuous circle between the musical instrument and the musical language: musical instruments respond to theoretical-linguistic demands, providing the types of sounds that composers have imagined; vice versa the instrumental research enriches the composer's musical vocabulary.

<sup>1</sup> LACHENMANN, Helmut – RIHM, Wolfgang [2010], *Conversazioni e scritti*, ed. Enzo Restagno, Ricordi, Milano, 80-93.

<sup>2</sup> [http://www.compositiontoday.com/interviews/marina\\_khorhova.asp](http://www.compositiontoday.com/interviews/marina_khorhova.asp) (last access 7 Feb. 2019).

<sup>3</sup> It can be listened to in her Soundcloud channel <https://soundcloud.com/marina-khorkova/tracks> (and from some uploads on YouTube and one on Vimeo A particular mention goes to the YouTube channel Score Follower, that deals with the diffusion - approved by the composers - of today's music, that broadcasts *a\_priori* (for flute and cello, 2013) and *Installationen* (for organ, 2012), with the score-roll video. Only a few sites introduce to her music:

[http://www.compositiontoday.com/interviews/marina\\_khorhova.asp](http://www.compositiontoday.com/interviews/marina_khorhova.asp) Marina Khorkova interviewed by Christian Morris (last access 7 Feb. 2019).

<https://fdleone.com/2015/10/22/marina-khorhova-existential-sounds-on-the-border-of-life/> (last access 7 Feb. 2019).

<http://www.akademie-solitude.de/en/fellowship/fellows/marina-khorkova~pe3688/> (last access 7 Feb. 2019)

<sup>4</sup> The term *New Lutherie* introduced in VERRANDO – AA.VV. 2012 is resumed, discussed, deepened and applied to several case studies in the recent MANFRIN – MANCA 2018.

Verrando produces the following list of instrumental families:

- electric instruments (electromechanical, electro-acoustic, electronics tout court);
- digital instruments;
- concrète and percussion instruments;
- the transformation of the acoustic instruments (a different approach to them, new means to produce sounds, disrobing, metamorphosis, etc.)<sup>5</sup>.

The compositional research of Marina Khorkova seems to refer to the last category. As the analysis of three case studies - *Falsche Spiegelungen* (for two prepared piano, 2012), *Aleph* (for ensemble, 2012), and *collision* (for ensemble, 2015) – will show, all of them evince a similar approach to the instruments that influences actively and in different ways the compositional processes that have been associated by Dirk Wieschollek with the ideas of *musique concrète* and microtonality<sup>6</sup>. *Musique concrète instrumentale* is the term Helmut Lachenmann uses to describe the sonic world he developed, made by gestural *objets musicaux* and derived by the investigation of the possibilities of the acoustic instrument evading the historically-fixed sound source. «The result is aesthetic provocation: beauty denying habit.»<sup>7</sup>

After almost fifty years from this affirmation, Helmut Lachenmann's musical language keeps its inspiring place in the history of music of the last century, influencing the youngest generation of composers on various levels. Marina Khorkova's reception of *musique concrète instrumentale* involves primarily the organization of sound: the sonic action on the instrument and its consequent *objets musicaux* is no longer imprinted by aesthetic provocation and becomes the sound itself to use as a possibility for the creation of a composition. This perspective on sound synthesis encourages, in particular, microtonal writing.

According to Wertz [2001], the use of microtonality in compositions up to 1980 can be identified in two distinctly separate categories of aesthetic horizons: composers who use *Just Intonation* compositional techniques and those who use the microtonal system to add pitches. On the latter category, Wertz therefore distinguishes:

- Construction of microtonal clusters and masses of sound (ex. Xenakis, Penderecki, Ligeti);
- Inflection or bending of the basic, functional tones in a scalar or twelve-note idiom (ex. Ives, Bartók);
- Full expansion of the twelve-note chromatic by the creation of a new, more minute equal-tempered chromatic in which all intervals are treated as equally distinct and potentially functional (ex. Carrillo, Maneri, Hába). [WERTZ 2001]

The influence of the French spectral movement in contemporary music, which implies microtonal division as an approximation of a physical frequency [MURAIL 2005] makes it necessary to add a fourth category to those of Wertz: the use of microtonal division as a metaphor for a technomorphic model<sup>8</sup>. Composers like Grisey, Murail, Vivier, Levinas, Saariaho, and Romitelli use sound – analyzed, filtered, and synthesized through the computer – as a source of frequencies [ROSE, 1996 and HIRS – GILMORE 2009]. Marina Khorkova relates to these techniques, sharing the idea of the harmonic (and sub-harmonic)

<sup>5</sup> <https://www.giovaniverrando.net/lutherie-composition/on-new-lutherie/> (last access 7 Feb. 2019)

<sup>6</sup> Wieschollek 2016, 12. The Russian composer Marina Khorkova works with almost scientific meticulousness on sound-spaces that have absorbed various traditions of microtonality and the innovations of *musique concrète instrumentale* into multi-layered harmonies and timbres.»

<sup>7</sup> <https://www.breitkopf.com/work/3878/pression> (last access 7 Feb. 2019).

<sup>8</sup> In GRIFFITHS - LINDLEY - ZANNOS 2001 are quoted those «composers who based chords on harmonic spectra, for example Tristan Murail, Gérard Grisey and Claude Vivier.»

spectrum as a sound metaphor but detaching herself from the principles of acoustic derivation of the organization of frequencies. Compositions like *Falsche Spiegelungen* (2012), *Aleph* (2012), and *collision* (2015) use 19 typologies of incidentals (Fig. 1) because of the involvement of various multiphonics techniques in almost all instruments. As will be analyzed in the case of *Aleph* (2012), Marina Khorkova uses the harmonic and sub-harmonic spectrum as an extension of the possible choices. The organization of the pitches, not seen as frequencies, is determined in a sound space consisting of very complex timbral situations, ordered in the macroform inside what Wieschollek calls *sonic landscapes*.

According to Oxford Dictionary, sonic landscapes are «musical composition[s] characterized by the building up of layers of sound to form a densely textured work, especially in electronic music.»<sup>9</sup> Barry Truax used those terms as a title for his record “*Sonic Landscape: Electronic and Computer music*” from 1977<sup>10</sup>, and for the track “*Sonic Landscape: no.3*” contained in that record. For Truax the concept of *sonic landscape* involves the sound in relation to spatial environments, and in his writings [TRUAX 1977] he uses *soundscape* as the term to identify this connection. In Marina Khorkova – who sees her music as a flow of sonic streams<sup>11</sup> – a *sonic landscape* can be associated in a timbral and acoustic environment with its own fixed, unique properties, just like a natural *soundscape* that has fixed qualities that depend on the environment that produces sounds. The macroform in Marina Khorkova depends often on the juxtaposition of different *sonic landscapes*. The three examples analyzed in this article express this approach and assume the weight of poetical metaphor in *collision*.

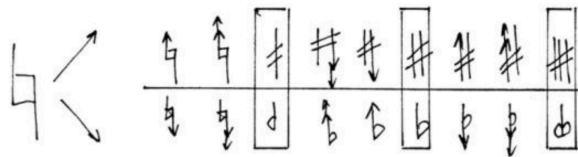


Fig. 1. Incidental system in Khorkova's writing, from *Aleph* (2012) page 4.

**2. *Falsche Spiegelungen*** – Compositional research as a development of a practice: the prepared piano. From Cage's *Sonata and Interludes* to Khorkova's *Falsche Spiegelungen*

The history of the prepared piano begins before the compositions of John Cage but sees in the inventiveness of the American composer a synthesis of a historical and artistic process<sup>12</sup>. In the 1930s, U.S.-based experimental composers such as Edgar Varèse, Henry Cowell, and William Russel were most interested in percussion, the relationship between music and dance, and ethnomusicological investigations into non-Western music. In particular, Cowell's performance practice, studies, teaching, and music publishing activities bear witness to the American trends of those years. The well-known teacher-student relationship between Cage and Cowell [MILLER 2006] is one of the sparks that lead to the preparation of the piano.<sup>13</sup>

Cage started to compose for prepared piano in 1940, writing the piece *Bacchanale* for the dancer Syvilla Fort, who was supposed to perform the final recital – inspired by her

<sup>9</sup> [https://en.oxforddictionaries.com/definition/sonic\\_landscape](https://en.oxforddictionaries.com/definition/sonic_landscape)

<sup>10</sup> Truax, Barry & Mailing, Phyllis. (Performer) & Cernauskas, Kathryn. (Performer) & Thompson, Arlie. (Performer) & Hartenberger, Russell. (Performer) et al. (1977). *Sonic landscapes: electronic and computer music*. Melbourne: Distributed by London Records of Canada

<sup>11</sup> Khorkova's communication, Skype call with the author.

<sup>12</sup> For further information on the history and practice of the prepared piano: BUNGER 1973, BUNGER – ENGLISH-MARIS 1980, DIANOVA 2008, FÜRST-HEIDTMANN 1979, HERNÁNDEZ 2015, HENCK 1994.

<sup>13</sup> CAGE, foreword to BUNGER 1973.

African roots, expressed in a heavily gestural performance - for her graduation from Bonnie Bird's class. His interest in the preparation of the piano focuses on the percussive and highly-inharmonic sounds obtained by the manipulation of the strings. He wanted to write for percussion ensemble, but he didn't have space for the instruments. Taking his cue from Cowell's teachings, Cage conceived of the piano interface as a means to produce percussive sounds, suitable for the context of dance to which the composition was entrusted. After six years experimenting with these techniques, Cage started to write *Sonatas and Interludes* (1946-48), a cycle of sixteen sonatas and four interludes in which the preparation was systematized and fixed in the table of preparations on the score. Cage, measuring the length of the piano strings, wrote in which part of the string the preparatory material was to be placed. Marina Khorkova was heavily-influenced by Cage's piano preparation for *Sonatas and Interludes*, studying it, writing *Ohne Titel for prepared piano* (based on Cage's preparation, 2009), and presenting lectures at the Tchaikovsky Conservatory in Moscow.<sup>14</sup> After acquiring confidence with the sonic possibilities given by Cage's preparation of the piano in *Ohne Titel* and other preparatory studies, Khorkova created her own system, used for the first time in the piece *VORderGRENZE* (for piano, cello, and saxophone, 2010/11) and then in *Fläche I* (for ensemble, 2011), *Beschwörung durch Lachen* (for ensemble, 2011), *Falsche Spiegelungen* (2012), *Aleph* (2012), and *klangNarbe* (for saxophone, percussion, and prepared piano, 2014). The system she developed is called *falsche spiegelungen* (false reflections, terms that become the title of the piece of 2012), and it involves the preparation of the piano in the position of certain multiphonic nodes, in order to obtain and modify the harmonic content of the chosen multiphonic, emphasizing the *microtonal nature* of the piano.<sup>15</sup>

The term "false" means the relation between naturally produced multiphonics with the ones obtained by the preparation of the strings, which are "reflecting" similar frequential qualities in a more inharmonic timbre.

Multiphonic techniques, along with the production of manuals for players<sup>16</sup>, are becoming even more used in contemporary compositions. As for the multiphonics in the piano, the topic was analyzed in depth by Juhani Vesikkala, who wrote: «Multiphonics present minute grades of interval steps with complex microtonal frequency proportions and most cannot be accurately presented on the tempered 12-tuned instrument. [...] The term multiphonic will be [...] used to denote a sound that is made of some but not all the harmonic components from an overtone series. » [VESIKKALA 2016, 1]

Marina Khorkova based her *false reflection* technique on the organization of piano preparation according to personal principles of multiphonic organization, influenced by Caspar Johannes Walter's studies on multiphonics on the piano and microtonality [WALTER 2014] and studying and working with him in Stuttgart.

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<sup>14</sup> The information was taken from the personal CV by Marina Khorkova, shared with the author.

<sup>15</sup> Khorkova's communication, Skype call with the author.

<sup>16</sup> Among others: BUCHMANN 2010, DOUGLAS 1996, FARMER 1982, GALLOIS 2009, VAN CLEVE 2004, WEISS – NETTI 2010.

Online sources:

[http://www.jayeaston.com/Composers/clarinet\\_techniques.html](http://www.jayeaston.com/Composers/clarinet_techniques.html) (last access 7 Feb. 2019).

[http://www.jayeaston.com/Composers/sax\\_techniques.html](http://www.jayeaston.com/Composers/sax_techniques.html) (last access 7 Feb. 2019).

<http://www.cellomap.com/> (last access 7 Feb. 2019).

[http://www.malletjazz.com/lessons/ext\\_tech.html](http://www.malletjazz.com/lessons/ext_tech.html) (last access 7 Feb. 2019).








 es <sup>2</sup>	HOLZSTÜCK ca. 5 cm	9,3 cm	1-2	
	SCHRAUBE s.o. – ges <sup>4</sup>	1,5 cm	2-3	
 d <sup>2</sup>	SCHRAUBE s.o. – b <sup>3</sup>	16,7 cm	1-2	
	DÜBEL s.o. – e <sup>2</sup>	4,6 cm	2-3	
 des <sup>2</sup>	SCHRAUBE s.o. – c <sup>5</sup>	10,6 cm	1-2	
	BOLZEN  11 cm 2 mm	6,3 cm	2-3	

Fig. 2. Page 12 of *Falsche Spiegelungen* (2012) score, preparation of three notes of piano I

In *Falsche Spiegelungen* (2012) for two prepared pianos, her compositional research becomes an explicit poetic element already in the name, and are present in both sound materials and formal level. The unpublished manuscript score has a preface explaining the preparation of the two pianos (Fig. 2). Taking as an example the preparation of E flat<sup>5</sup>, D<sup>5</sup>, and D flat<sup>5</sup>, it should be noted that the insertion of pieces of wood, screws, dowel, and bolts between the strings can generate complex multiphonic sounds, and are modulated according to which material is inserted in the node of the multiphonic. This type of preparation takes place for almost the entire keyboard of the two pianos, with the intentions expressed by the composer: «Die Präparation I wurde als „falsche Spiegelung“ von der definierten Reihe der Mehr- klänge von der C-Klaviersaite aufgebaut, d.h. sie wurde mit einer Obertonreihe von C „verbunden“ und erdacht. Jeder präparierte Ton entspricht einem bestimmten Oberton des Mehrklangs. »<sup>17</sup> The score is presented in a clear division into two contrasting sections (Fig. 3 and 4), which can be associated with the ideas of *striated time* and *smooth time* of Boulez [BOULEZ 1979, 81-98]. In his "*Penser La Musique Aujourd'hui*" the French composer identifies *striated time* as defined by the perceptible presence of a pulsation - regular or irregular -, defining itself in turn as *straight* or *curved*, depending on whether the pulsation is constant (the first) or not constant (the second). *Smooth time*, on the other hand, is the time that presents neither cuts nor modules.

<sup>17</sup> From a research project, shared with the author.

FALSCHES SPIEGELGEBEN  
FÜR ZWEI PRÄPARIERTE KLAVIERE

MARINA KHORKOVA  
(2012)

I. (NUR ZWEI PIANISTEN: TASTEN)

Fig. 3 Page I of *Falsche Spiegelungen* (2012)

II. TEIL IST FÜR VIER PIANISTEN:  
ZWEI auf den TASTEN  
ZWEI auf den MEHRKLÄNGEN

53"

II. (II. TEIL: JEDE SEITE HAT BESTIMMTEN ZEITRAUM  
z.B. S. IV - 53"; S. V - 1'43"; S. VI - 2'36"; S. VII - 3'56")  
DYNAMIK UND ARTIKULATION SIND FREI UND RHYTHMUS  
ENTSPRICHT GRAPHISCHER NOTATION

Fig. 4. Page IV of *Falsche Spiegelungen* (2012)

The first section (Fig 3) is characterized by fast arpeggio figures of different durations (the right-hand plays a figure of four ascending notes, the left one of five), which, overlapping, create a sound flow that is perceived as unique, and whose internal movements move slightly in phase, slowing down at specific points of the score marked by black arrows and a minimum change of tempo. It is a clear example of *striated time*, not homogeneous in the perception of the pulsations, perceived as regular or irregular in relation to the synchronization of the gestures.

The second section is similar to what Boulez calls *smooth time*, where a clear pulsation is not perceived. Performers in this section double: two interact with the piano keyboard in the places of the prepared notes, and two play the prescribed multiphonic in the lower notes of the instrument. The notes are presented graphically (Fig. 4) in a way similar to the practices associated with Morton Feldman's practice, called "free natural durations" – used for the pieces *Last Piece #3* (1959) and *Durations I-V* (1960-61), in which the articulation and duration of a note are left to the performers [LENZI 2009, 55-60; BORIO 1996, 120-136; DELIO 1996, 39-70]. The last four pages that structure the second section of the song have written at the top an actual duration of the page played. The time increases progressively (the first page must be played in 53", the second in 1'43", the third in 2'36", the last in 3'56"), thus dilating the density of the exposition of the sonic material. The example in Fig. 5 illustrates a transcription of the incipit of the first piano of page IV. It can, therefore, be seen how the resulting sound of the multiphonics interact deeply with the sounds of the prepared keys - approximated in this notation: the F half-sharp and the downtuned B-flat of the first prepared bichord has a timbral quality that contrasts with that of the multiphonic, but shares the approximate pitches. The technical and sonic effect of *false reflection* theorized by Khorkova is clearly exposed.

Fig. 5. Transcription with the sonic results of the prepared strings of the first piano, *Falsche Spiegelungen*, page IV

After Cage's experiences from the 1940s and the gradual integration of extended techniques within the practice of piano performance, the piano is now treated by composers in the most idiosyncratic ways and in line with their aesthetic thinking. For example, in addition to Khorkova case, Clara Iannotta in *Il Colore dell'Ombra* (for violin, cello, and piano) prepares the *Patafix* with some metal pieces on the strings, in the knot of the harmonics, in order to obtain the accurate sounds she prescribes; Stefan Prins in the

cycle *Piano Hero #1-4* (for MIDI keyboard, piano, video, and live-electronics, 2011-17) transforms the piano into an audiovisual element, breaking it down and playing its organological components. The world of sound offered by the prepared piano moves the interest of the electronic and digital world: for example, artists like Aphex Twin use samples derived from the sound of the piano prepared for the production of their music<sup>18</sup>. To facilitate availability and spread the use of the sound possibilities of the prepared piano, IRCAM, in collaboration with UVI, released in 2017 the "IRCAM Prepared Piano," a virtual multi-sampler that simulates the insertion of objects of various types within the strings of a Yamaha C7 Grand Piano<sup>19</sup>.

**3. Aleph** – Study of the compositional process: relations with the model *Lamentatio Jeremiae Prophetae*, op. 93 (1941/1942) by Ernst Křenek.

Werntz [2001], noting the future perspectives of the uses of microtonality systems, mentions the possibilities of applying serial techniques to the management of microtonal aggregates. He does not give examples of the application of serial techniques, but cites an "atonal" use in Maneri's *Cain and Abel* (1980). Marina Khorkova's *Aleph* (2012) gives a good example of the use of a microtonal system, born and organized using post-serial strategies; the analysis of the sketches of the composer<sup>20</sup> essential in witnessing those procedures.

*Aleph* (for oboe, clarinet, bassoon, viola, double bass, prepared piano, and percussion,<sup>21</sup> 2012) was commissioned in 2012 by the Ernst Křenek Institute and played by the Klangforum Wien in October 2012 on the occasion of the Festivalpass.

The piece was influenced by Ernst Křenek's compositional techniques, as Khorkova said: «Die harmonischen und rhythmischen Modi der hebräischen Buchstaben der *Lamentatio* wurden von mir aus dem Modalsystem in ein System der spektralen, klangfarblichen und zeitlichen Modi transformiert, die mosaikhafte zu kompakten bzw. durchsichtigen Klangströmen zusammengesetzt wurden.»<sup>22</sup>

The *Lamentatio* to which she refers is Ernst Křenek's *Lamentatio Jeremiae Prophetae*, op. 93 written in 1941/1942, for voices. This composition is a work that synthesizes Křenek's interest in Renaissance compositional techniques - with particular regard to Ockeghem's practices on which he wrote a monograph [KŘENEK 1953]- and the possible practices with the use of dodecaphonic series to control the pitches derived from a monodic intonation [WIRTHS 2011]. The Gregorian *Incipit Lamentatio Jeremiae Prophetae* is the *lectio prima* of the liturgy of the Proper Time of the Good Thursday of the Sacred Week, contained in the *Liber usualis* [1962] (Fig. 6); a particular characteristic of this sacred intonation is the melismatic presence of the letters of the Hebrew alphabet.

<sup>18</sup> Samples of prepared piano are used in *Jynweythek [Jynweythek Ylow]; Kladvvgbung Micshk; Hy A Scullyas Lyf A Dhagrow; Prep Gwarlek 3b; Ruglen Holon; Beskhu3epnm* (Disc 1, tracks 1, 3 and 14; disc 2, tracks 7, 11 and 14), *Drukqs* [2001], WARPCD92, Warp Records, London.

<sup>19</sup> <https://www.uvi.net/ircam-prepared-piano.html#specs> (last access 7 Feb. 2019).


<sup>20</sup> I would like to thank Marina Khorkova here for her willingness to discuss her work and to provide me with scores and preparatory materials for her pieces.

<sup>21</sup> The preparation of the piano is the same as that of *Falsche Spiegelungen*'s second piano based on the C spectrum, adding fishing wires to the lower monochords of the instrument, to be played with the bow, to obtain a cluster with a very granular sound. The scordatura of the viola and the double bass is in turn related to the preparation of the piano.

<sup>22</sup> <https://musikprotokoll.orf.at/de/2012/werk/aleph> (last access 7 Feb. 2019).



LECTIO PRIMA Cap. I, 1-14



ALEPH. Quómo-do sé-det só-la cí-vi-tas pléna pó-pu-lo :

Fig. 6. *Liber usualis* [1962, 631]

Starting from those pitches, Ernst Křenek derived the basic form of the series, constructed by two hexachords (Fig. 7), which are treated with respect to his interests in the *cantus firmus* technique. The two hexachords that comprise the series of which the series is composed are by their nature independent, and the generation of the following system of pitches is a consequence of this independence. Fig. 8 illustrates the derivation of six series through a process of progressive displacement of the first note of each hexachord, and a consequent system of interspacing of the whole series by transposing the single hexachords first to F, then to B. The series on F and B are for Khorkova the starting points for the creation of *Aleph's* compositional system. An interesting case of dialogue between historical compositional techniques: Ernst Křenek, inspired by Ockeghem's contrapuntal techniques, re-organizes an early musical material with dodecaphonic techniques, treating it with the same rigor that any Renaissance composer treats a sacred *cantus firmus* in a larger Mass. Marina Khorkova, on the other hand, integrates and generates her compositional system from Křenek's original technical material, respecting her own aesthetic canons.

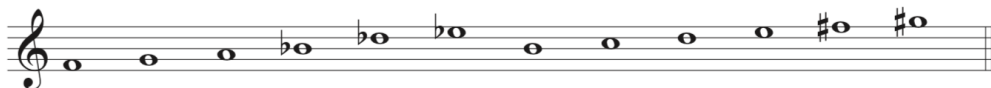


Fig. 7. The series from *Lamentatio Jeremiae Prophetae*, op. 93, clearly divided into two hexachords.

Unlike some of her contemporaries, Khorkova has no theoretical publications or explicit poetic declarations to her credit; it is therefore necessary to investigate her process of producing the musical material in order to acquire a clearer technical awareness of the finished piece. Two examples in which Ernst Křenek's model assumes two generative-organizational functions of the musical material are analyzed below.

Fig. 8. Series generated by Ernst Křenek analyzed by Marina Khorkova. Marina Khorkova's private archive.  
A1 and the reversal of B5 are the hexachords used for the generation of the *Modus I*.

### 1. Generation of the organization of the *Modus*

As Křenek generates his series – also called modes [WIRTHS 2011, 4-38] – from the Gregorian monody, Marina Khorkova generates and manages her *modus* from Ernst Křenek's series (Fig. 9).

This *modus* is the first in a series of five other modes of similar derivation.

Fig. 9. *Modus I*, sketch detail, Marina Khorkova's private archive.

Taking its cue from the natural independence of the hexachords of the Křenek's series, Khorkova studies the intermittent properties of the individual hexachord. Looking at the intervallic qualities of each hexachord (in the figure, the analysis of Khorkova) we can see how the first hexachord (circled and called A1) shares the same intervallic qualities with the retrograde of the second hexachord of the fifth series (circled and called B5, its retrograde, which for the sake of synthesis from here on will be called RB5).

A1 transposed in the octave 0 becomes the generator of the pitches' components, which derive from a harmonic-based system. RB5 transposed in the octave 6 becomes the generator of the pitches derived by a subharmonic system. As can be seen in Fig. 10, the series elaborated by Křenek are divided into two hexachords: the first of the series in the lower part of the central section of the diagram and the second in the upper part. The series can be read from the bottom to the top, and in order from left to right.



Fig. 11. *Aleph*, score, first bar of page 11.

## 2. *Microtonal clouds*<sup>23</sup>

As already mentioned above, one of the main features of the Gregorian model is the intonation of the letters of the Hebrew alphabet after each stop mark in the text. Ernst Křenek in turn intones them; Marina Khorkova analyzing them (Fig. 12), builds a generation system of *microtonal clouds*.

With this term Khorkova refers to microtonal aggregates derived from a sub-harmonic pitch system derived from Ernst Křenek's intonations. Let's take as an example the case of the letter Aleph (the first on the top left in Fig. 12). Khorkova, as illustrated in Figure 13, organizes the pitches present in a crescent series in Křenek's intonation, excluding the voice of the tenor and maintaining the individual durations. This series from the model of the *Lamentatio* generates and organizes a management scheme of the heights on the subharmonic system. Similar to what we saw in the previous example, the notes of the series are ordered horizontally as if inserted in a dodecaphonic system (D=column 1; E=column 3; G#=column 7; etc.) and vertically generates columns whose unit refers once again to the partial of a subharmonic spectrum (Fig. 14).

<sup>23</sup> Term used by Khorkova in a personal communication, Skype call with the author.

*Handwritten notes:* "Алфавит Еврейский" (Hebrew Alphabet), "Триголосный" (triglossic), "сравнительный анализ" (comparative analysis), "анализ интонаций" (intonation analysis), "lectio prima", "lectio secunda", "lectio tertia", "lectio quarta".

LECTIO PRIMA  
A - leph. A - leph. A - leph. A - leph. A - leph. A - leph. A - leph. A - leph.

lectio secunda  
Vau. Vau. Vau. Vau. Vau. Vau. Vau. Vau.

lectio tertia  
Jod. Jod. Jod. Jod. Jod. Jod. Jod. Jod.

lectio quarta  
Caph. Caph. Caph. Caph. Caph. Caph. Caph. Caph.

Men. Men. Men. Men. Men. Men. Men. Men.

Heth. Heth. Heth. Heth. Heth. Heth. Heth. Heth.

Fig. 12. Marina Khorkova's analysis of Ernst Křenek's intonations of Hebrew alphabet. Marina Khorkova's private archive.

**ALEPH**  
[subharmonisch]

*Handwritten notes:* "интервалы" (intervals), "гармонизация" (harmonization), "структура" (structure), "кавалер" (cavalier), "универсальная" (universal), "2, 3, 4, 6, 8" (intervals), "определенная" (determined).

2 2 2 1 1 1 2 1 1 1 1 1 2 2 2 2

Fig. 13. Sketch detail, Marina Khorkova's private archive.

**ALEPH**  
[subharmonisch]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

Fig. 14 Subharmonic system, controlled by the duration of the pitches. Sketch detail, Marina Khorkova's private archive.



50

FLATTEN-  
GLOCKEN

E-BASS  
ENTFESSEN

KLARINETTE

MITTELKORB

12

Detailed description: This is a page of a musical score for the piece 'Aleph'. It features ten staves. The top two staves are for vocal parts, with lyrics in Russian. The middle staves are for woodwinds and brass, including Flattenglocken (chimes), E-bass, Clarinet, and Horns. The bottom two staves are for piano and cello/contrabass. The score includes various musical notations such as dynamics (p, mp, mf, ff), articulation (acc., stacc.), and performance instructions. A rehearsal mark '12' is present at the bottom center.

Fig. 16. Aleph, page 12

Handwritten musical sketch with Russian lyrics and performance notes. The sketch is written on ten staves. The lyrics are in Russian and include phrases like "вот они и...", "снова...", "не слышит...", "наше...", "руки...", "наше...", "руки...", "наше...". The sketch includes various musical notations such as notes, rests, and dynamics. There are also handwritten annotations and markings throughout the score.

вот они и...  
снова...  
не слышит...  
наше...  
руки...  
наше...  
руки...  
наше...

Fig. 17. Sketch detail, Marina Khorkova's private archive.

In 2015, a second version of the piece was released. A performance of this can be found on YouTube, played by the Ensemble Proton Bern<sup>24</sup>. In this version, the percussion is replaced by the harp, playing its body and using other extended techniques, and distributed to the rest of the instrumentalists, for example the polystyrene played with the bow. The score of this version has been developed in close contact with the ensemble, modifying the 2012 original.

#### 4. *Collision, sonic landscapes, and formal scars*

The composition and interaction of sonic landscapes is both a poetic and formal quality of Marina Khorkova's compositional language. The treatment of a macro-form composed of multiple and different timbral situations is clearly intelligible in *collision* (2015), for trumpet, trombone, two percussionists, prepared piano, electric guitar, and cello. The title refers to a process of "clashing" sonic sections: every time a sonic landscape clatters with a new one, there are transformations in both formal and sonic implants. Marina Khorkova manages the sound streams in different ways through the composition in order to obtain an idealistic *fragmented* global form<sup>25</sup>. The idea at the root of *Collision*, and in *klangNarbe* (for baritone sax, prepared piano, and percussion, 2014-15) earlier, is to connect high-contrast musical material, creating bridges and "scars" that cut the sound streams.

Fig. 18 shows the macro-formal structure of the composition: 45 sub-sections comprise 17 different sonic landscapes. The segmentation of the sub-sections, indicated with the letters A-G, is determined by the appearance of a new sonic material that comprises a sonic stream; the sonic landscapes are indicated with the numbers 1-17

Due to the analysis of the score and the performance<sup>26</sup>, five techniques of connecting sections are clearly identified.

The first two sonic landscapes (subsections 1A-D; 2A-B) are connected by gradually dissolving a sonic gesture in the second sonic landscape. In the example shown in Fig. 19 the sound of the four e-bows – apparent from the very first bars – remains for the first two bars of subsection 2A, as a sound stream that is absorbed and masked by the global sound of 2. The two sonic landscapes exemplified here present two completely different sonic situations: the first one is a density-crescendo of rough sounds that preserve a clear harmonic content. The drone-figure generated by the four e-bows provides the harmonic continuity across which the other instruments relate: the piano, played using multiphonics, conflicts microtonally with the drone, as do the tuning fork on the tympani and the crotales played with bow in subsection 1B; then, in subsection 1C the trumpet and the trombone are added, playing a microtonal glissando gesture on A3 modified by the use of the wah-wah mute. The second sonic landscape – subsection 2A-B – destroys the (in)harmonic world with a toneless whisper-like gesture of the trumpet and trombone, supported by the percussionists - who use a polystyrene piece with a bow and two chains on the marimba - by the guitar, which has to drag a tinfoil on the keyboard, and by the cello that plays two of the highest notes on the instrument with the nails.

<sup>24</sup> <https://www.youtube.com/watch?v=tt0fc8QlnR0> (last access 7 Feb. 2019)

<sup>25</sup> Khorkova's communication, Skype call with the author.

<sup>26</sup> *collision* (track 1, Ensemble ascolta), *klangNarbe* [2016], WER 6418 2, Edition Zeitgenössische Musik, Bonn.



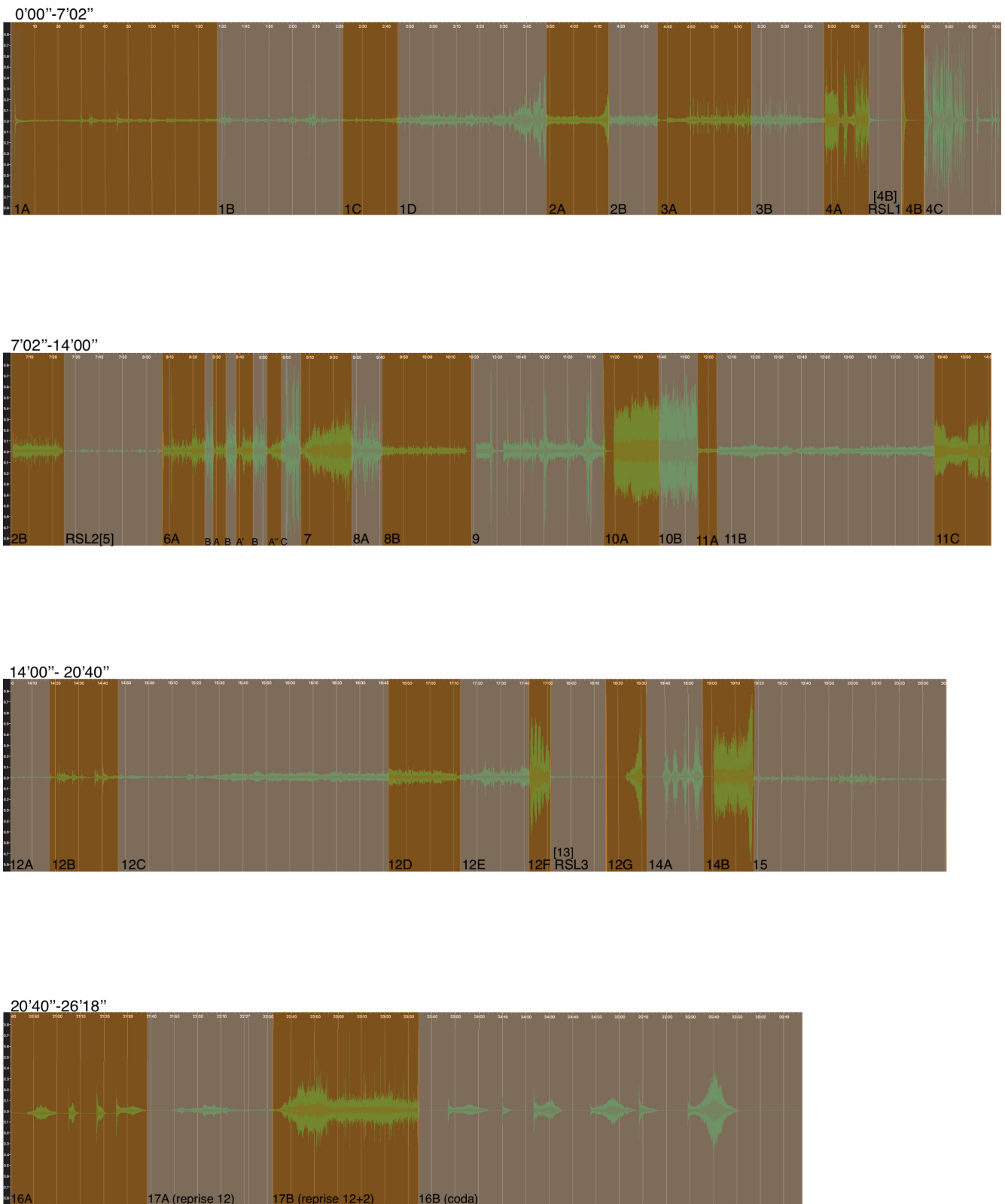


Fig. 18. *collision* (track 1, Ensemble ascolta), *klangNarbe* [2016], WER 6418 2, Edition Zeitgenössische Musik, Bonn. Waveform and segmentation. "RSL" stands for "recurrent sonic landscape": a segment or an entire sonic landscape that presents the same sonic qualities.

The second technique of formal architecture is the timbral continuity of a sonic object. Sonic landscapes 11 and 12 (Fig. 20), are linked by the continuity of spectral qualities that make 12 derivatives of 11: the first is a distorted drone composed of micropolyphonic structures of brilliant sounds by the brass and the percussion (vibraphone, marimba, crotales, and glasses) played with the bow and a grained inharmonic component given by the distorted electric guitar played with the bow, and the cello heavy-pressed bow technique. The drone figures change their profile three times during 11 (A, B, C), in a process of crescendo that, at its highest level – with the multiphonic glissando by the brasses - is interrupted. At the moment of disruption, the inharmonic component dissolves and only the micropolyphony of brilliant sounds remains, becoming 12A. The element that segments 12B is a piano multiphonic on Bb<sup>0</sup> and C<sup>0</sup> that recalls the micropolyphony of 11. Starting from the second multiphonic, the timbral structure becomes more unstable, which leads to the evolution of 12 (C-G).

Fig. 19. collision, page 3

Fig. 20. Collision, page 19

Another montage technique is to introduce a characteristic of a sonic landscape in the one that precedes it. The first appearance of this technique is between sonic landscapes 3 and 4 (Fig. 21). The latter is an homorhythmic-based section, coming from a context of white noise (3), in which the rhythmic qualities are noise-like impulses created by the slap techniques of the brasses. The connection between 3 and 4 is made by the maintenance of the white noise background created by the air spray through the megaphone, and by the scratching of the piano strings with sewing thimbles; the focus in 4 is not on the inharmonic element of the sound, but rather on the impact of the homorhythm in *f* played by all the instruments, excluding the piano and the second percussion part.

The fourth montage technique present in *collision* is the interruption of a gesture with the start of a new one, creating a sound stream perceived as unique. This technique is used to connect sonic landscapes 7 and 8. With a series of fast timbral glissandi by the guitar, trumpet, and the cello, 7 ends with the trumpet glissando of bar 89, which is directly synchronized with the start of the characteristic guiro sound of 8 (Fig. 22).

The image shows a handwritten musical score for 'collision', page 7. The score is divided into two main sections by a vertical line. The left section contains four staves: 1. A waveform-like staff with a jagged line. 2. A staff labeled '2. STAHL-PLATTE' with the instruction 'MIT ZWEI GLÄSERN KRATZEN KONTINUIERLICH' and a drawing of two glasses. 3. A staff labeled 'KLAVIER' with musical notation and the instruction 'DISTORTION: OFF'. 4. A staff labeled 'E-GIT.' with a wavy line. The right section is numbered '7' in a box and contains five staves: TR. (Piccolo Trompete in B) with musical notation and a '5' above it; Pos. (Positiv) with musical notation and a '5' above it; 1. LUFT-SPRAY with a wavy line and the instruction 'INS MEGAPHONE'; KLANG E-GIT. NOTATION with musical notation and a '5' above it; and CELLO with musical notation and the instruction 'hinters dem Schlag NAGEL-PIZZ. SPIELN'. There are also handwritten notes like 'MIT SEHR HARTEM PLEK SUM AM OBER SPIELN' and 'SO HOCH WIE MÖGLICH' with arrows pointing to notes. The score uses various musical notations including notes, rests, and dynamic markings like *f*.

Fig. 21. *collision*, page 7

Fig. 22. collision, page 13

The montage technique that Khorkova uses the most is the operationalization of silence, which becomes the knife that cuts the musical stream and assumes three formal functions: total detachment, suspension of the stream, and inner quality of the sonic landscape. The total detachment function determines the connection between the sonic landscapes of the second part of the composition: in 9-10 and from sonic landscapes 13 to 17, silence becomes a divider between high-contrasting timbral situations.

Silence assumes suspension qualities on the stream of the sonic landscape when the sonic situation following silence is similar to what came before, but some qualities are increased. This happens in sonic landscapes 4 and 14.

In the first case, silence separates the brief anticipation of two pulsations of the sonic material enveloped in the whole sonic landscape. In the latter example, the silence suspends a process of global crescendo, tensing the sound stream and releasing it with more sonic energy.

In sonic landscape 16, which functions as an anticipation of the coda, silence is an inner quality of the sound streams. Those sections are characterized by the instrumental synthesis of the multiphonics on the piano strings, creating an envelope of the sustain of the sound and a gradual release of it. The orchestration timbrally recomposes the sonic qualities of the multiphonics in order to create more inharmonicity using spectral fusion of extended techniques; silence, in this case, is necessary to let a sound live and die.

## Bibliography

BORIO, GIANMARIO [1996], *Morton Feldman e L'espressionismo Astratto*, in Gianmario Borio - Gabrio Taglietti (eds.), *Itinerari della Musica Americana*, LIM, Lucca, 120-136.

BOULEZ, Pierre [1979], *Pensare la musica oggi* (1963) transl. Luigi Bonino Savarino, Einaudi, Torino, 81-98.

BUNGER, Richard [1973], *The Well-Prepared Piano. Foreword by John Cage, with Numerous Drawings by the Author and Photos by Rod Butler*. Colorado College Music Press, Colorado Springs.

BUNGER, Richard - ENGLISH MARIS, Barbara [1980], *Why, When, How - and How Not to Prepare a Piano*. «Piano Quarterly», 109, Wilmington, 36-37.

BUCHMANN, Bettina [2010], *The Techniques of Accordion Playing*, Bärenreiter-Verlag Karl Votterle, Kassel.

CAGE, John [1965], *Sonatas and Interludes*. C. F. Peters Corp., New York.

DELIO, Thomas [1996], *Last Pieces #3* (1959) in DeLio, Thomas (ed.), *The music of Morton Feldman*, Excelsior Music Production Company, New York, 39-70.

DIANOVA, Tzenka [2008], *John Cage's prepared piano: the nuts and bolts*, Mutasis Books, Victoria.

FARMER, Gerald [1982], *Multiphonics and Other Contemporary Clarinet Techniques*, Shallumo Publications, Rochester.

Forum: Microtonality Today (Part One), "Perspectives of New Music", 29/1, 173-257.

Forum: Microtonality Today (Part Two), "Perspectives of New Music", 29/2, 72-211.

FÜRST-HEIDTMANN, Monika [1979], *Das präparierte Klavier des John Cage. Kölner Beiträge zur Musikforschung*, Bosse Verlag, Kassel.

GALLOIS, Pascal [2009], *The Techniques of Bassoon Playing*, Bärenreiter-Verlag Karl Votterle, Kassel.

GRIFFITHS, Paul - LINDLEY, Mark - ZANNOS, Ioannis [2001]. *Microtone*. *Grove Music Online*.  
<http://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000018616>.

HERNÁNDEZ, Patricia Pérez [2015], *La Transformación Del Timbre Del Piano: Desde Su Evolución Mecánica Hasta Las Técnicas Extendidas, Mediante Elementos Internos, Externos Y Electrónicos*, Doctoral Thesis, Valencia University.

HENCK, Herbert [1994], *Experimentelle Pianistik: Improvisation, Interpretation, Komposition: Schriften Zur Klaviermusik (1982 bis 1992)*, Schott Verlag, Mainz.

HILL, Douglas [1996], *Extended Techniques for the Horn. A Practical Handbook for Students, Performers and Composers*. Warner Bros. Publication, Miami.

HIRS, Rozalie - GILMORE, Bob [2009], *Contemporary Compositional Techniques and Openmusic*, IRCAM/Delatour, France & Amsterdam School of the Arts, Amsterdam.

HUDICEK, Laurie Marie [2002], *Off Key: A Comprehensive Guide to Unconventional Piano Techniques (Henry Cowell, John Cage, Alan Hovhaness, George Crumb, Alexandra Pierce)*. Doctoral thesis, University of Maryland College Park.

KŘENEK, Ernst [1953], *Johannes Ockeghem*, Sheed & Ward, New York

KŘENEK, Ernst [1959], *Lamentatio Jeremiae Prophetae für gemischten Chor a cappella op. 93*, Bärenreiter-Verlag Karl Votterle, Kassel.

LACHENMANN, Helmut – RIHM, Wolfgang [2010], *Conversazioni e scritti*, ed. Enzo Restagno, Ricordi, Milano, 80-93.

LENZI, Marco [2009] *L'estetica Musicale di Morton Feldman*, LIM, Lucca, 55-60.

*Liber usualis missae et officii pro dominicis et festis: cum cantu gregoriano ex editione vaticana et rhythmicis signis in subsidium cantorum a Solesmensibus monachis diligenter ornato* [1962], Desclée, Paris [etc.], 631.

MANCA, Gabriele – MANFRIN, Luigi [2018], *Fare Strumento. Composizione, invenzione del suono e nuova liuteria*, Edizioni ETS, Pisa.

MILLER, Leta E. [2006], *Henry Cowell and John Cage: Intersections and Influences, 1933–1941*, "Journal of the American Musicological Society", 59/1, 47-112.

MURAIL, Tristan [2005], *The Revolution of Complex Sounds*. "Contemporary Music Review", Volume 24/2-3, 121-135.

ROSE, Francois [1996], *Introduction to the Pitch Organization of French Spectral Music*. *Perspectives of New Music* 34, No. 2, 6-39.

SHOCKLEY, Alan [2018], *The Contemporary Piano: A Performer and Composer's Guide to Techniques and Resource*, Rowman & Littlefield, Lanham.

TRUAX, Barry [1977], *The Soundscape and Technology*, "Interface", 6/1, pp. 1-8.

VAES, L.P.F. [2009], *Extended Piano Techniques In Theory, History and Performance Practice*, Doctoral thesis, Leiden University, Leiden.

VERRANDO Giovanni – AA.VV. [2012], *La nuova Liuteria: orchestrazione, grammatica, estetca*, Suvini Zerboni, Milano.

VESIKKALA, Juhani Topias [2016], *Multiphonics of the Grand Piano - Timbral Composition and Performance with Flageolets*, Composition MA thesis, Sibelius Academy/University of the Arts, Helsinki.

VAN CLEVE, Libby [2004], *Oboe Unbound: Contemporary Techniques*. University of California Press, Berkeley and Los Angeles.

WALTER, Caspar Johannes [2014], MEHRKLÄNGE AUF DEM KLAVIER: VOM PHÄNOMEN ZUR MIKROTONALEN THEORIE UND PRAXIS, IN CASPAR JOHANNES WALTER - CORDULA PAETZOLD (EDS.), MIKROTONALITÄT - PRAXIS UND UTOPIE, SCHOTT, MAINZ, 13-40.

WEISS, Marcus - NETTI, Giorgio [2010], *The Techniques of Saxophone Playing*, Bärenreiter-Verlag Karl Votterle, Kassel.

WIRTHS, Jeremy R. [2011] *The Influence Of Renaissance Music In Ernst Krenek's Lamentatio Jeremiae Prophetarum*, Doctoral thesis, University Of North Texas.

WIESCHOLLEK, Dirk [2016], *Kollisionen, Klangnarben, falsche Spiegelungen. Die Musik Marina Khorkovas als Kammermusikalische Hybris aus Mehrklang und Geräusch*. CD insert, *klangNarbe*, WER 6418 2, Edition Zeitgenössische Musik, Bonn.

WERNTZ, Julia [2001], *Adding Pitches: Some New Thoughts, Ten Years after Perspectives of New Music's "Forum: Microtonality Today"*, "Perspectives of New Music", 39/2, 159-210.

### **Sitography** (last access 7 Feb. 2019)

[http://www.compositiontoday.com/interviews/marina\\_khorhova.asp](http://www.compositiontoday.com/interviews/marina_khorhova.asp)

<https://soundcloud.com/marina-khorkova/tracks>

<https://en.schott-music.com/shop/klangnarbe-no345284.html>

<https://www.giovaniverrando.net/lutherie-composition/on-new-lutherie/>

<https://www.breitkopf.com/work/3878/pression>

[https://en.oxforddictionaries.com/definition/sonic\\_landscape](https://en.oxforddictionaries.com/definition/sonic_landscape)

[http://www.jayeaston.com/Composers/clarinet\\_techniques.html](http://www.jayeaston.com/Composers/clarinet_techniques.html)

[http://www.jayeaston.com/Composers/sax\\_techniques.html](http://www.jayeaston.com/Composers/sax_techniques.html)

<http://www.cellomap.com/>

[http://www.malletjazz.com/lessons/ext\\_tech.html](http://www.malletjazz.com/lessons/ext_tech.html)

[https://www.casparjohanneswalter.de/research/piano\\_multiphonic\\_calculator\\_2](https://www.casparjohanneswalter.de/research/piano_multiphonic_calculator_2)

<https://musikprotokoll.orf.at/de/2012/werk/aleph>