



# **\_KERNEL\_**

an ensemble of computers

*KERNEL is the project of a small musical ensemble specialised in "live" interpretation of large-scale composed electronic music.*

*This simple phrase already raises the questions and reflexions having generated this desire:*

*\_ Using the computer as a "real" instrument - thus not restitution of beforehand fixed sounds (sound-files, samples, sequences), but real time creation and synthesis of sound. What does it mean to "play" a computer?*

*\_ Composition of a "live" electronic music - thus development of a language, a written one (and one can feel it will be defined outside of the classical solfeggio), which should permit to imagine, define, the electronic music. Real composition and not graphic notation of existing sounds ;*

*\_Interprétation d'une telle musique - quels sont les éventuelles variables, qui peuvent être manipulées en cours de jeu sans pour autant dénaturer l'idée compositionnelle; en d'autres termes où se place l'"essence" de telle ou telle composition?*

*\_ Interpretation of such a music - which are the possible variables and limits which can be changed in the course of playing without losing the compositional idea; in other words where the "essence" of such or such composition is?*

A projet of Kasper T Toeplitz / Sleaze Art

\*\*\*\*\*



## \_\_ELECTRONIC ENSEMBLE

Since a few years - since more or less year 2000 - the computer has become a central element in my musical work, and this in at least two areas:

- \_ a tool for composition, or assistance in the thinking of music - the use of software like patchwork, OpenMusic or PWGL, which makes it possible to handle, out of the sound itself, the musical concepts, and also, to a lesser extent, the tools like Spear, MacPOD... which make it possible to rebuild sound microstructures outside of what is possible to note - primarily a work inside the sound and not on the sound;
- \_ the computer also became for me a real musical instrument, on which I do not reproduce existing musics, or bits of musics, but on which I play - real time synthesis, which allows me a flexibility of interpretation similar to what one can experience on a traditional instrument.

Of course I am also using this tool for other applications in the musical field - mixing and editing sounds, the mastering of recordings, or as a tool for hybridising the traditional instruments and by opening new possibilities to those, new timbral and organologic fields (modification of the ambitus, polyphony, control of the amplitude, of the time constraints at the moment of the playing) - cf my project BassComputer (<http://www.sleazeart.com/BassComputer.htm>).

But in the **KERNEL** project the main questions and propositions are about the computer as instrument, the playing and interpretation on this instrument, and the composition for an ensemble of computers.



## \_\_FORMATION & INSTRUMENTARIUM

\_ I imagine a rather small unit - approximately 4 musicians. Approximately, because according to the needs for such or such part, it is very possible to work with three - or more. Given the chosen instrumentarium - instruments which are supposed not to have limits in terms of polyphony or poly-timbrality - I do not imagine for the moment the need for a formation larger than, say, 6 musicians. It is however possible that the future, or a future composition, gives me wrong...

\_ I am not planning a "group" i.e. a fixed unit: it is the idea of a "nebula" which appears interesting - a relatively reduced number of possible participants, without all "being supposed" to take part in all the projects, without even the need to create a single project joining them all.

\_ All of the musicians play the computer - considered and used as an instrument. That supposes a familiarity with this tool, as well as the capacity to program it. I would wish to be able to associate with the project a programmer - specialist in data-processing languages and their musical applications - but it is necessary that the musicians are all capable of a certain "virtuosity" on their instrument (of course it will remain to define, another question, what the term of "virtuosity" means in this context).

In addition to the computer, it is very possible to also add analog electronic instruments - synthesizers - for the difference in sound color that those instruments carry. In a more general way, it is necessary, than the interpreters are "responsible" for their own instrumentarium, which relates to as much the used hardware as the software.

\_ Computers can of course emit sounds; but they also can generate images or steer lights - and the tools, software, ways of proceeding for doing so are often similar to those used in music. Such an use can be considered, in the case of **KERNEL** as silent instruments. And increase the field of musical expression to the silent events.



Of course those questions and ideas are to be found in many of my compositions - I already wrote several pieces for an ensemble of computers - examples are Demonology (2001); Kernel (2003); RARE (2002); Styx (2006); or compositions for solo computer solo played by other musicians: Taire, 2000; Marine, 2001. The composition Kernel composition also integrates a silent light-instrument.

Obviously, working on those questions only in the context of rehearsals for a creation is not the ideal solution. This remark is also true for the automatisms necessary for "playing together" (compare the quality of the "ensemble sound" of a string quartet to the one of 4 musicians brought together for a single concert); moreover, a "computerized" ensemble, in which none of the instruments has a predefined "function" (since all have equal possibilities of polyphony, ambitus, expression) requires new ways of playing together.

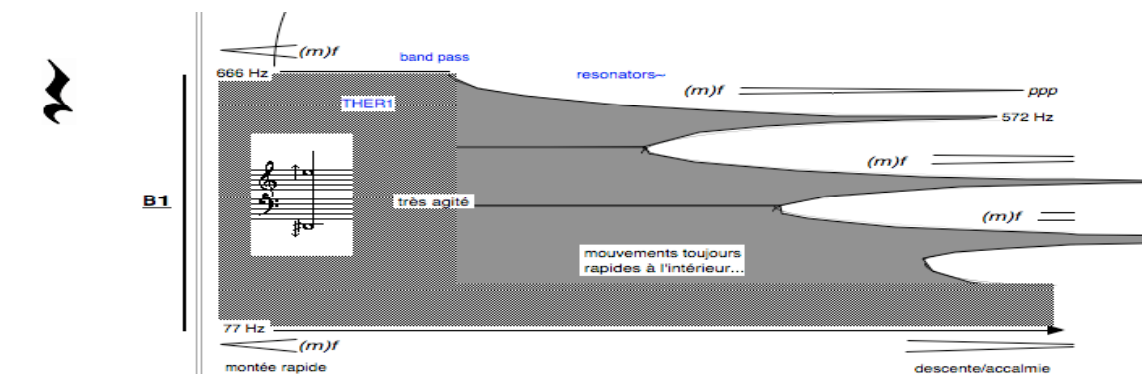
The need to create this unit also comes from there; being able to explore these new challenges without the deadline of a new creation.

## \_\_AESTHETICS & COMPOSITIONS

\_Simply said, the project of **KERNEL** is to interpret long electronic compositions, which I call "electronic architectures". Durations around 40 minutes, or more - long constructions.

\_If we have to define comparisons or influences, it could be Xenakis (La Légende d'Eer, Persépolis), J-C Eloy (Gaku-No-Michi), perhaps Dumitrescu, or, citing another side of today's music, un-written, musicians like Z Karkowski, F López, Merzbow or JazKammer.

The main difference, in both cases, is that we are talking about composed music, replayable from one concert to another, but a music without sounds fixed on support (soundfiles) - a music played for real.



\_ I am the artistic direction of this project, and it is more than possible that a majority of the pieces/realisations will be of my composition - the first working phase of **KERNEL** will be articulated on my past experience in similar projects; actually a re-written version of "Kernel" (2001), named KERNEL#2, is the first piece the new unit is currently working on. Already, a way to test the validity of a written score for live electronics.

But in the future I want to open this project to other composers and to thus nourish the reflexion; on one hand it is sure that the interpreters will quickly bring their batch of remarks and proposals, but also, in the long term, I believe we will be able to propose a tool and a system to

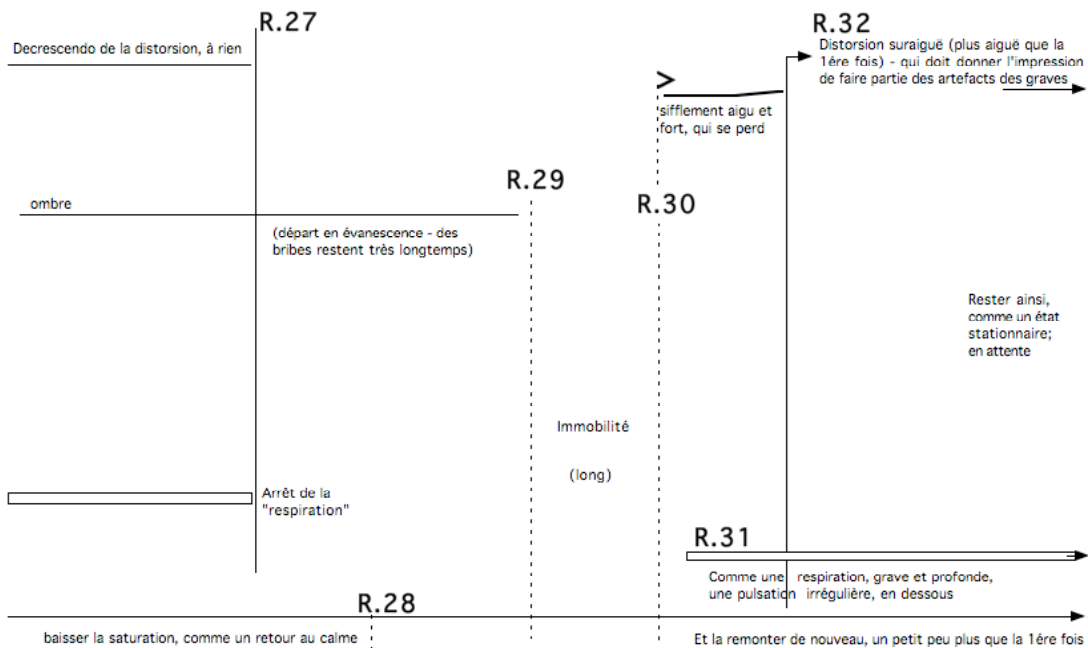
artists - composers – whose artistic ideas might seem close to our questioning, be they from the world of the oral tradition, minimalism, visual arts or electronic music; to consider a real work, whose 1st phase would be a presentation of possibles and aesthetic choices, as KERNEL will define them.

The beginnings of this unit will be based of my present compositionals options - long pieces, based on a structure of materials with slow evolutions, inhabited by an internal "flutter". That could define a number of my recent parts - "This is my house", "Molecular Black", "Lärmesmitte", "Purr # 1", "Styx" or "Eau Blanche"... But also my collaborations with artists being part of the "noise" or "new music" scene: "Le Dépeupleur", with Zbigniew Karkowski, the trio with Anna Zaradny and Robert Piotrowicz, "Neon Green" with Tetsuo Furudate... Or my work as interpreter of composers such as Phill Niblock, Éliane Radigue or Dror Feiler...



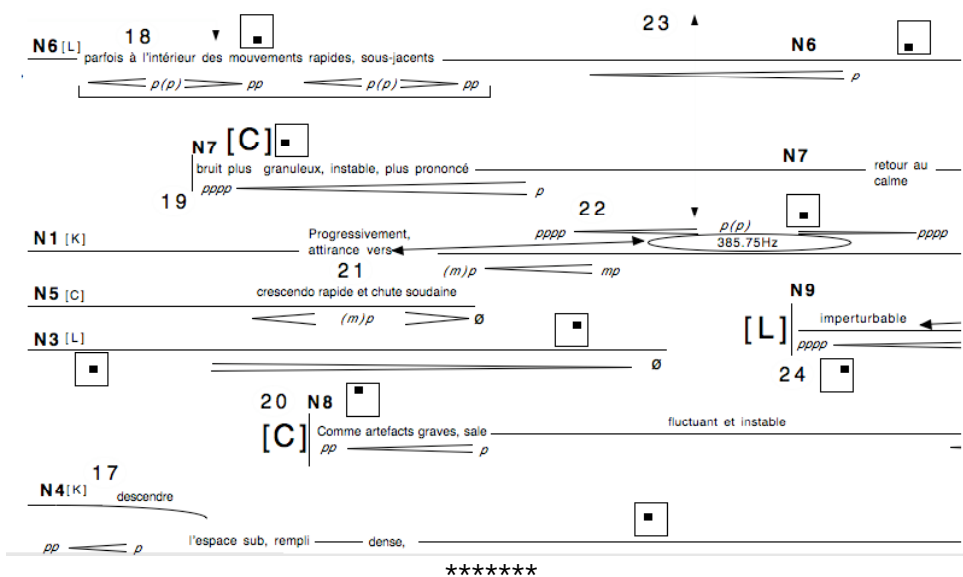
## \_\_\_WRITING & COMPOSING

\_ To work with a group of electronic instruments – mostly computers - on preexisting compositions supposes a specific writing. I insist, in my own work, on keeping the idea of a metalanguage of musical thought, different from the sonic realisation itself. In other words we have to develop a written vocabulary which would make possible to keep what is a great force of the "traditional" music: the writing on the paper, "a priori", in silence; and not the work on the sound itself. I rest assured that it is precisely the use of a metalanguage different from the musical language itself which permits a greater creativity - the use of writing is pretty obvious today within the framework of a music using the solfegic language (heights, durations), but in new music, dealing with "matters" and shapes, such a vocabulary does not exist, or at least is not very relevant (How to think a granular synthesis? "fuzzy" edges of a frequency band? The passage of a color of noise to another?)



\_ Of course it is not a completely new direction in my work: all my pieces for computers (always played "live") always are pre-written, and some of these pieces were also played by other musicians - a rather unusual situation in the electronic music; I currently can not think of any other example of purely electronic music, using real time synthesis, which is played by somebody other than its author.

\_ For the moment my partitions are mostly graphic sketches, with quite a lot of verbal indications; the pitches, when I want very precise pitches, are indicated in hertz and not in notes: I reserve the traditional solfegic notation to indicate "edges" (of ambitus for example) which are by definition more "fuzzy". I also use more abstract concepts - as "a little higher" or "in reaction", "play the memory of a sound-color" instead of a precise pitch - which then can result in a very different pitch, which will be considered "right" if the interpreter playing it feels indeed an agreement with his memory.



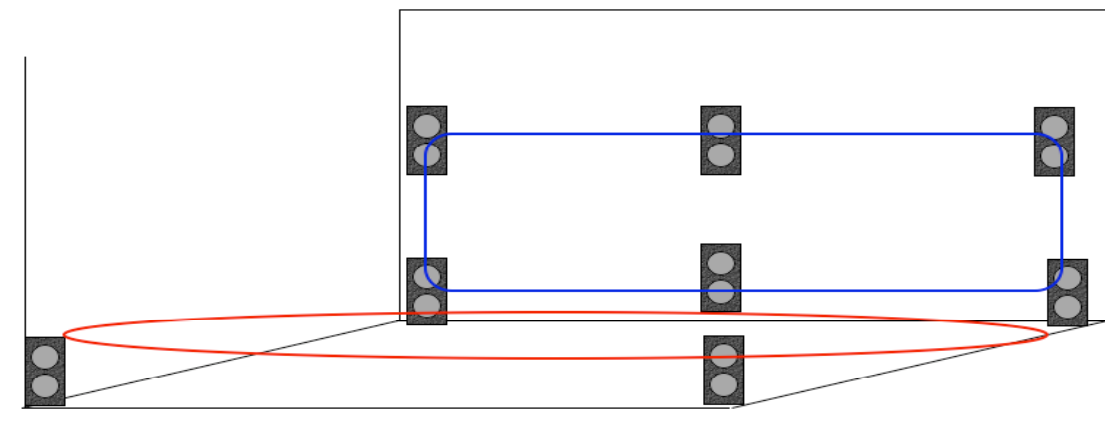
## \_\_\_ SOME TECHNICAL CONSIDERATIONS

### \_Sound diffusion :

Although each piece can need - even be based on - a specific system of spatialization, I consider basic set-up for **KERNEL** a diffusion in 4 principal points, typically installed in the 4 corners of a room.

Ideally this system also comprises 4 subs - the spatialization of the low registers, contrary to the generally accepted idea according to which it is not perceptible, is an idea to which I hold much: Innommée (2004) is based on the diffusion of low frequencies, between 40 and 60 Hz, on 7 points - and it is obvious that the public perceives these movements clearly.

This main system will be completed by a second system, a mono source for each musician placed close to him - small monitors or instrument amps, making it possible "to point" the origin of certain sounds. Of course each musician will be able to send such or such sound to different speakers.



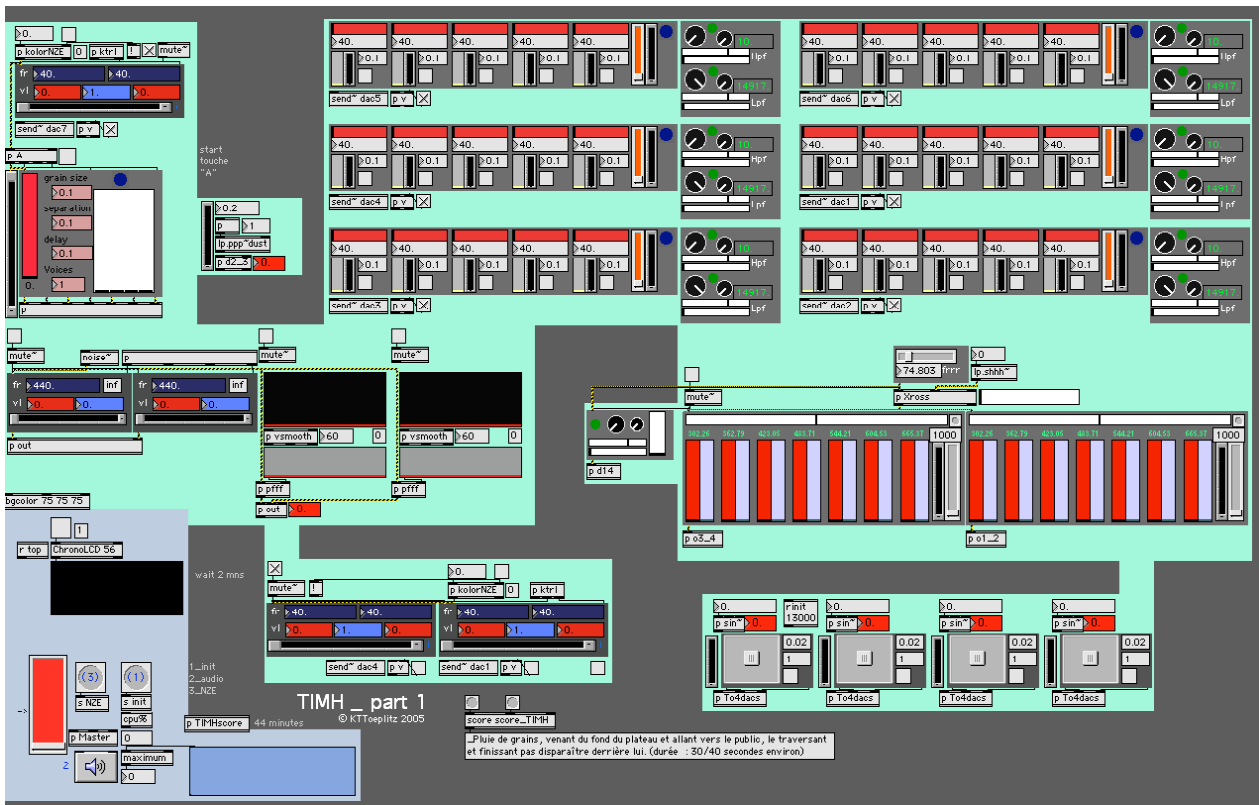
### \_Network:

The computers will be connected by a network - serving for exchange of cues, but also for the circulation of sound. This will permit to add the powers of different machines, but also synchronize certain actions, or to make them dependent one on the other .

This system also makes it possible for the musicians to communicate between them - which opens different new possibilities, such as (Iterated direction).

### \_ Software:

Most certainly, in the majority of the cases, the MaxMSP software will be used - it is a very powerful and relatively simple. It is nevertheless important to to me to also use of other softwares - each one of them bringing slightly different questions and answers. Thus it would be desirable, even in the course of the preliminary work, to throw an ear towards Csound, Reaktor, SuperCollider, PD, Live, others... The use of hardware machines - synthetizers, effects, filters... - proceeds of the same desire.

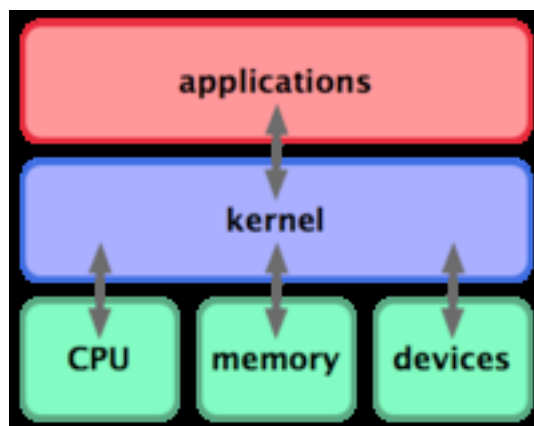


\*\*\*\*\*

\_\_OTHER

\_\_KERNEL, one of the very few words exclusive to computers and build for them:

" In computing, the **kernel** is the central component of most computer operating systems (OSs). Its responsibilities include managing the system's resources and the communication between hardware and software components. As a basic component of an operating system, a kernel provides the lowest-level abstraction layer for the resources (especially memory, processors and I/O devices) that applications must control to perform their function. It typically makes these facilities available to application processes through inter-process communication mechanisms and system calls. "(Wikipédia)





\_CD

Two years ago Sleaze Art did start a CD label, r.o.s.a. (Recordings Of Sleaze Art). The diffusion of **KERNEL**'s work will also be done by recordings, in addition to concerts. This diffusion will also be part of the proposition we could make to other composers  
<http://www.sleazeart.com/rosa.html>



----- \*\*\*\*\* -----

It is clear, I believe, that **KERNEL** it is not a project of one piece, only one creation, but a long-term project: the creation of a tool, a research, even of an aesthetics.

Contacts:

KTToeplitz/Sleaze Art: [sleazeart@club-internet.fr](mailto:sleazeart@club-internet.fr)  
Alexandrine : [alexandrine.kt@free.fr](mailto:alexandrine.kt@free.fr)

----- \*\*\*\*\* -----

\_\_Attachements

\_Texts:

- "Ordinateur comme instrument" the question of writing music for computers \_JIM 2002
- "Écriture Musicale" some more ideas, 2004
- "Kernel - LP", a short study on the piece Kernel, by Laurent Pottier, "Etude de Kernel, pièce mixte de K. T. Toeplitz, colloque Musiques électroacoustiques, Ircam, Journées Résonances 2003"
- "kasper t. toeplitz\_PL" interview by Krzysztof Sadza
- "ktt\_acme" interview in "les cahiers de l'acme", by Roald Baudoux

\_Scores:

- "Demonology#11"
- "Kaoss\_styx"
- "Kernel"