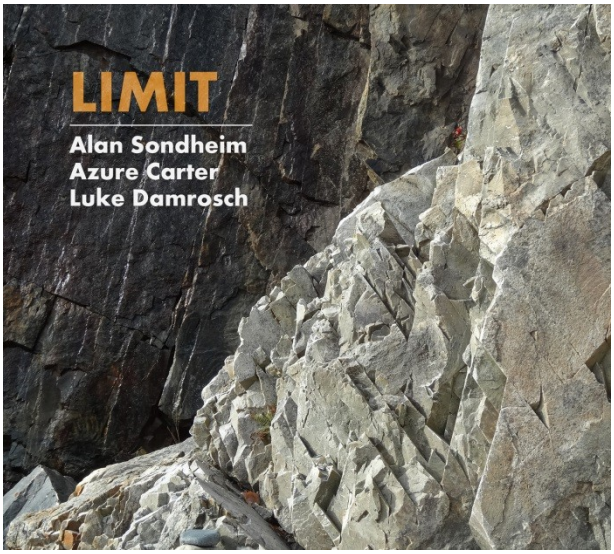

Alan Sondheim / Azure Carter/ Luke Damrosch

LIMIT

PE138

Luke Damrosch: programming, engineering, madal

Azure Carter: songs, vocals

Alan Sondheim: mastering, concept, viola, guqin, flute, clarinet, alto clarinet, long-necked saz, dan moi, ghichak, ukulele, guzheng, holeless shakuhachi, hegelung, sanshin, rebab

Reverse reverberation in real time is an impossibility; the physics of space-time doesn't permit it. That said, Luke Damrosch has developed programs that approach the impossible; the result is a new form of music dynamics. The general idea is that you can reverse shorter and shorter segments 'almost' as if they were reversed in real time, but you're really dealing with fundamental limits of spacetime; only on a quantum level is reversibility possible (for example a positron as an electron moving temporally backwards in Feynmann diagrams - retrocausality in Wikipedia), and that's up for grabs. In any case, I've been interested in processes that operate at the edge of this sort of dynamics, where physics, acoustics, and philosophy meet. And here is a resulting cd, using acoustic instruments, where this is a guiding principle.

A second example involves the use of dynamics processing (I'm using Adobe Audition), in which the louder something is, the quieter the output - reversing the usual dynamics. I've been doing this in post-processing, but with voltage-controlled amplifiers, it's easy to do as analog in real time. The result is fascinating - if I'm playing shakuhachi or guqin for example, the sounds of breathing, of the body, of string slip, etc., come to the foreground and the traditional musical 'content' recedes. The body becomes a fundamental source of sound, almost as if it were playing itself.

Again there are a lot of contradictions here; since a slow sinewave, for example, varies in amplitude, it might disappear or become increasingly dominant itself, depending on the settings (frequency ranges employed) for the dynamics processing.

I'm also working with pitch reversal, so that, for example, a frequency F is transformed into 1/F; the basis of F can be set so that the range as a whole is inverted. You can see how this is almost the same as dynamics processing; the two are deeply related. (This hasn't been implemented yet.)

All of this connects to my interest in philosophy and the foundations of mathematics. Most acoustic transformations are 'surface' transformation, as if the physical acoustic environment were itself changing (larger or smaller room, etc.), or as if parameters were changing holistically (raising or lowering pitch, etc.). There are exceptions, but this is done, for the most part, in terms of musical or other aesthetics. I'm interested in something fundamental in a different way.

Traditional foundations of mathematics begins with such things as logic, set theory, etc. - as you know, anomalies appear all over the place (Godel's theorem is the most obvious example). But the tendency now is to look at dynamics based on things like category theory - in which there are objects and arrows, or objects and morphisms and rules and structures emerging from these. Arrows are also objects, objects can be morphisms, etc. etc. I understand very little of this, but it's really relevant to the kinds of global transforms that revrev or inversions represent; I tend to think of dynamics applied through acoustic spaces for example - at least that's where I'd like to go....