

**Resonators at CES 2007 and beyond - far beyond**

*Brainwater* on AudiogoN: "One of the biggest surprises of the show was Franck Tchang of Acoustic System. Franck is a Chinese acoustical engineer living in Paris with a name like... well, Franck. What a combination! He was showing [to great effect] a block of wood with a tiny cup on top. The cups come in various metals and do different things to some degree. The product was called a Resonator. He effortlessly manipulated the soundfield and soundstage by simply repositioning the cup. He widened, closed, deepened and moved forward the soundstage with the slightest change in position. It was astounding and has my vote for tweak of the - century! Way to go Frank." *Stehno* on AudiogoN: "I'd have to say that the most fascinating tweak I heard had to be the little 2-inch x 2-inch x 1/2-inch thick resonator blocks with a little cup and ball and what they did for soundstaging and room acoustics when strategically placed in the room or on top of the components."

Word is spreading. Since their introduction, 10,000 resonators have already sold. dCS of digital fame became the UK distributor, not exactly a company associated with crap engineering and voodoo fluff. But, I digress. Having enjoyed the benefits of Franck's personal expertise, I will say that his invention has the kind of *potential* Nobel Prizes are awarded for. These resonators are far bigger than audiophilia. Audio is merely the entry point. In the postscript, I suggest two fields in which their use is presently being investigated. Of course there's also the energetic acupuncture for homes and buildings. It's the very kind Franck demonstrated for us in Coral Bay so we could report on it for our readership. Exactly how these latter influences register with and on our complex psycho-physical beings is a bit mysterious. One aspect *might* have to do with the fact that human bodies consist of mostly fluids. External pressures affect internal pressures. Internal pressures impact emotional and physical wellbeing. Something as simple as blood pressure regulates whether we feel energetic or sluggish, well rested or exhausted. There's probably a connection just as large air inversion layers over a city will affect the moods of its citizens.



Another aspect is even harder to quantify. The resonators attenuate ultrasonic garbage. This becomes *intensely* obvious once you remove them after a competent whole-house installation has settled in. Envision an alley of CRTs at some media mart. 50-some conventional televisions are powered up simultaneously. The radiation pollution is intense. You can 'hear' this noise as an uncomfortable, very obnoxious activity impinging on your brain. It manifests as a kind of electrostatic pressure. It also leeches vitality. It makes you irritable or listless. That's why the resonators beyond audio use are addictive. Once you get sensitized to living in a space that's better shielded from this noise, reverting to the pre-resonator condition becomes as unappealing as sticking your head in a microwave.



However, the ramifications aren't entirely clear cut. Consider that our human brain is an electrical apparatus. It sends and receives frequencies - thoughts. Thoughts travel through air. Ultrasonic bands are where the resonators oscillate. They can impact your mental and emotional life in unexpected ways. For example, my wife is currently working on her third book. As any novelist involved in a book knows, characters begin to live in your imagination. Throughout the day and even during your sleep, there's an undercurrent of continuous activity. The story reveals itself in preview snippets, then downloads into your conscious mind whenever you engage your process at the keyboard.

Once Franck had performed our house tuning, *many* things shifted. One of these had to do with my wife reporting on unexpected side effects which she initially found very disconcerting. To wit, her imaginary involvement with the present book got damped, shut down even. She literally had a hard time concentrating on the story. Even the creative urge and drive to do so had diminished. "The feeling is as though someone had swept my mind clean. It's so clean, there's nothing left to refer back to, no lingering memory of the prior writing session, no urge to pick up where I left off. Where I left off is gone. The familiar continuity has been interrupted. What was there before -- call it muse, inspiration, spirit -- is empty now. The mind feels refreshed and clear but it now is an effort to make contact again with the writing process."

The implications are very personal. Through diet or drugs, blood chemistry affects our emotions. Manipulate the blood chemistry and feelings you might consider an intrinsic part of your makeup will turn out to be chemically induced reactions. It's a nearly hardwired reflex to say "I am angry" rather than, "anger is happening". We own our feelings. Identifying with them is part of who we think we are. Likewise for thoughts. That identification is summed up in Descartes' *Cogito ergo sum*. I think, therefore I am. You can well imagine now the interior shock when your mental life, the thing that's closest to you, suddenly changes in subtle ways that feel alien to you and which are triggered because of some tiny passive 'harmless' devices.

Used *en masse* (far beyond any audio application), the resonators must be accorded proper respect. It's possible to misuse them unwittingly. You can of course reverse any effects at any time simply by moving or removing these cups. Some effects simply might not be of the sort you'd ever correlate with these devices unless it was pointed out to you first as a very real possibility. It should come as no surprise by now that even sleep patterns are affected. Sleep is deeper because mental activity (which is perhaps triggered otherwise by electromagnetic interferences) is subdued. Less thoughts, better sleep. Reports from the field insist that especially kids suddenly sleep like logs. They have no concept about what those little gizmos might be doing. In some cases, they're even hidden behind curtains. They're oblivious to their presence. When children who used to be disruptive and hyper active in the morning suddenly sleep soundly and exhibit a different behavior pattern, we're not talking about placebo effects. Nor wishful thinking by the parents.



Concluding this chapter, a whole-house resonator installation performs electromagnetic shielding and attenuation of ultrasonic noise. This can somehow interact with or modulate the frequency band in which thought waves propagate. Naturally, changed brain wave activity will be measurable. Specialized research in this field could eventually shed light on these phenomena. Needless to say, particular effects will be tied very much to personal sensitivity. We're all different. A nervous system that's dulled by drugs, junk food, red meat, alcohol, tobacco, TV addiction and such could be rather desensitized. Permanent fear, anxiety and other strong negative emotions could lead to unhealthy forms of hyper tension. Add the resonators into the mix and how your psyche will be influenced becomes completely unpredictable. These are just tools. They vibrationally pattern an environment in the energetic dimension. However, there are no straightahead instructions for how to do this. You're on your own. The potential discipline of *Resonator Feng Shui* does not exist. Yet. It'll be up to curious and sensitive owners to experiment beyond the audio room. They'll have to birth such a discipline into action by using nothing but their own bodies and sensory feedback to guide them.

Franck of course is already doing some of this. Watching him apply his keenly honed sixth sense like a homing device to hear, see and feel areas of air turbulence and compression in the house was fascinating. He used his devices like repeater antennas to decompress pressure zones and establish a continuous air flow from room to room. Walls or closed doors presented no barrier. To counteract the open archway beyond the left speaker for example, he placed a resonator behind the right wall, in the next room. As far as sonic balance was concerned, this removed the right wall. Plainly audible.

During this process, Franck took things too far by creating *too much unrestricted open space*. At one point, he went outside on the porch and added a few resonators. Suddenly the internal air pressure dropped so dramatically that the front drivers of my speakers went into overdrive. Without touching amplifier gain, excursions increased significantly. These very robust pro drivers in fact began to distort on peaks. The room's air pressure which usually controls driver excursions from the front suddenly had taken a few backwards steps. The drivers in turn took forward steps. They visibly shook in their frames. Even the most narrow-minded textbook engineer would have been incapacitated to deny it. All you had to do was put your finger on the drivers. You could feel the excursions diminish to normal when Franck reset things *outside the house*. He visibly changed the air's damping factor. Magic time.

Once this was remedied, Franck left for the evening. My wife then experienced a fitfull and completely uncharacteristic sleep filled with such hyper tension and anxiety -- a persistent fluttering in the belly button she called it -- that she had to leave the house. She holed up in a blanket in her artist studio since I didn't know what in the setup to change to reduce this energy. I too felt this energy. In my body however, it didn't cause anxiety. I actually rather enjoyed it like a light black tea buzz. The next morning, Ivette described her experience to Franck. He of course had used his own body as barometer. Being a very high-energy man -- and man at that, not woman; this causes additional 'translation issues' -- his energetic comfort level proved too intense for my wife. Franck had overshot but knew how to turn things down easily. The main resonator he removed was a gold he'd installed in the refrigerator's freezing compartment in addition to the silver in the main compartment. Being completely sealed off from the house unlike the rooms with their door clearances and key holes, the cold air trapped inside the refrigerator has a very profound effect on the overall equilibrium of the whole house once resonated. (After Franck left for Paris, Ivette had to take out one more gold resonator from the setup matrix. Gold is clearly counter productive for her wellbeing. It creates anxiety, agitation and headaches in her.)



The ramifications of the resonators as Feng Shui tools are tremendous. The fly in the ointment? Franck Tchang thus far is the only living practitioner of this art. Though his distributors are trained in the resonator craft for audio applications (Thomas Fast in Germany alone has more than 500 listening rooms under his belt), none know how to take things to the next level and extend the benefits throughout the house. That's because they'd have to leave their ears behind. They'd have to switch to 6th-sensorial perception to feel the air behavior inside a habitat. They'd have to intuit exactly where to apply the resonator needles to pierce the air pockets of compression. Otherwise they'd fly blind.

Franck confided that he actually *does* see the air. Watching him roam the house to decisively affix resonators and diffusors in the most unlikely places was the stuff of legend. You can feel the effects but you can't see them. And you don't understand how he sees 'em. "Nothing that 14-hour days over five long years couldn't fix." He's honed his sensitivity like a blind Japanese masseur who sees energy meridians and whose hands know where to go and what to do to relieve tension. Franck is the royal air masseur.



Listening to music from adjacent spaces (our living room and kitchen openly connect to the listening room as does an attached laundry room, entry hall and corridor to three bedrooms), Franck described the whole-house tuning also in terms of getting four different guitar players to play as one. During the rebalancing process, sounds in these adjacent spaces would occasionally get louder as though you were in an ancient coliseum and hit one of the transfer spots where a softly spoken word on stage is acutely amplified in the rafters. These beyond-one-room applications of Franck's art are very complex. Everything is interlinked. The air connects all and each additional resonator affects all the others.





If you're inclined to regard this entire topic with suspicion or outright hostility -- bloody hogwash -- let me assure you that even if you swore to hearing or feeling nothing, you *would* feel two things if Franck wanted you to. Your breathing would become heavily labored to the possible point of intense anxiety; and your ears would pop just like on an airplane. The former of course entails deliberate abuse to make a point but Franck knows how to do it. Left to my own devices with the initial dispatch of resonators, I could clearly hear and enjoy their effects. Yet the subsequent adjustments of the maestro -- fast and surgical -- made me feel like a first-grader; ignorant, clumsy and coarse. What's more, I was clueless as to how far the resonator's impact could reach once applied by a master. Did I mention that out of the 10,000 resonators sold to date, apparently none have surfaced on the used market? That's the strongest endorsement I could think of.

Let's talk cost. The raw price for one kilo of Platinum is €38,000. The moment it goes to the casting plant, there's a 5% refuse. After processing (Platinum's melting point is 1,800 degrees and requires special equipment), there's a 30% reject rate for resonators. Dust or air inclusions render them garbage. That's why the Platinum resonators are by far the most expensive of the lot. They're 98% pure Platinum. A lot of listeners begin with a single silver or gold special resonator or two. \$500 easily gets you in. By sending Franck a digital image of your system's front wall, he'll guide you on where to affix the devices. He's extremely hands on. But be warned. This stuff is addictive. There's nothing else that does what this does. For some, it will render traditional room treatments obsolete. Conventional room treatments in fact are exactly what Thomas Fast specialized in as an acoustical technician before he ran into Franck Tchang to become the first disciple and German distributor. Each year, he supplies numerous exhibitors at the Munich HiFi Show with Acoustic System devices to help improve their sonics. He does not bring traps and absorbers. He brings these much maligned and ridiculed resonators and exhibitors clamor for them.

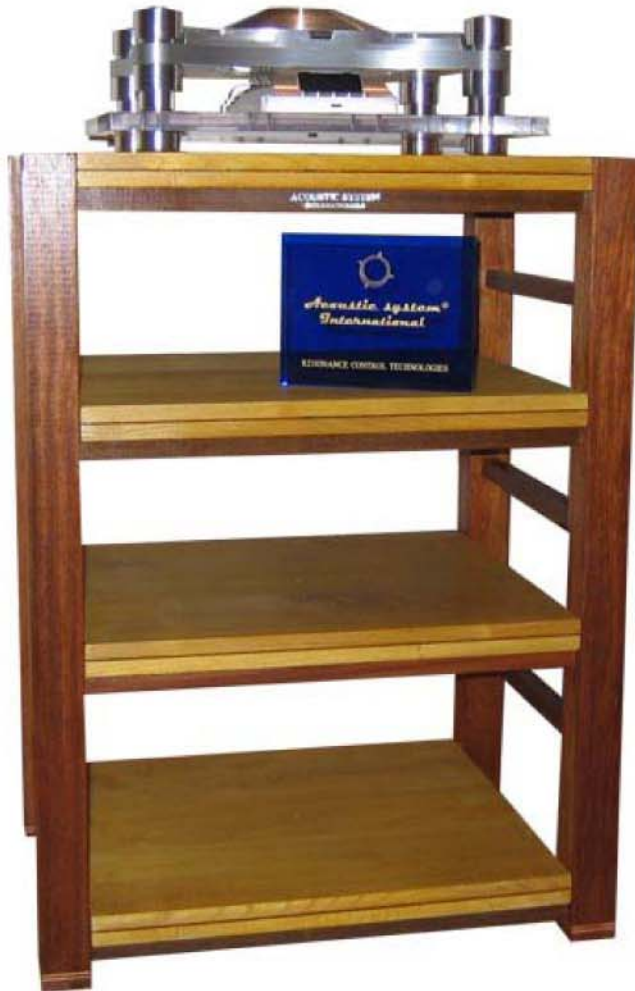
In Franck's universe, damping kills harmonic content. With it, the tension in the music is thrown out. "A bottle of ketchup" Franck quipped in reference to fake Hollywood blood. Kill the harmonics, kill the musical life. Instead of damping a room with traps, he insists on *releasing* compression so that the fine harmonic life can blossom. Enter a 2mm drill bit. As my listening room approached equilibrium, little changes made bigger and bigger differences. Franck could hear the permanently installed grill cloth of the Zus' bass arrays. So we drilled a single small hole into the MDF cover plates like a tiny release valve. Then we were bothered by some treble grain. "Got some oil?" "Olive oil okay?" "Sure, I'll just need a Q-tip." Franck painted the pointy aluminum phase plugs and tweeter horns to seal the aluminum pores. Grain reduced. A smaller professional resonator permanently mounted on a soldered shaft rather than loosely fitted into a tripod cradle was yellow-tacked in front of each tweeter to finish things off. Grain gone.

Now it was play time. The so-called diffusors made an appearance on the speakers. These are 3cm discs comprised of three stacked bonded wooden slivers. The dark sliver in the middle is without a center, the blond top and bottom covers have a tiny central hole to evacuate the pressure build-up inside the hollow body. It's like a miniature guitar with

F-holes, with air pressures rather than strings the activators. Wherever Franck applied those, touching them while music played showed 'em to vibrate strongly, siphoning off acoustic reflections. That's why they're called diffusors. They diffuse reflections. The two on the speaker tops turned out to affect a bit of relative treble energy. The degree thereof could be adjusted by rotating the discs so that their wood grain was either in line with the direct sound or across. Wicked.



For a cheap free trick, drill a small hole in the middle of your equipment shelves and see what happens. For the Full Monty, you'll have to order an equipment rack from Acoustic System. Delivery could take a long time though. That's because Franck only uses very particular woods. Their supplies are cyclical. If he's out of stock on raw materials, orders go on hold. This rack is claimed to have serious benefits before you even place equipment on it. It uses cavities and evacuation passages and is entirely free of metal fasteners. The size of the cavities and holes determines activation and release pressures. Development over six months apparently generated plenty of firewood and rejects.



In Franck's new Tango speakers, the same technology is exploited. The back pressure generated by the three paralleled woofers inside the sealed box gets channeled up into the midrange chamber via *very* narrow holes. Ditto for the midrange to tweeter chamber interface. There are more tiny holes. Braces made from specially chosen wood complete the cabinet tuning recipe without generating excessive weight. Very high torque on the driver mount screws deliberately raises the resonant frequency of the baskets by one octave. And so on. Everything Franck does is fundamentally very simple. In how he applies this simplicity for apparently confounding results is where comprehension loses its grip and defaults to convenient claims of voodoo. But within the industry, he's fast becoming a go-to man. Quite a few manufacturers at the CES who ran into sonic troubles solicited Franck's help. When you're in pain, you don't care about fancy explanations. You take the medicine and get better. It could be something stunningly simple, such as opening a window to equalize the internal air after hordes of hot bodies had heated it up over half a day to overdamp the sound.



Then there's the flip side. At the same CES, Franck had a maker of traditional room treatments walk into the Acoustic System exhibit, badge - um, *flipped* to disguise identity and accost the exhibitors of snake oil peddling. Smart man. While he may not have sat down to calmly evaluate things and ask for a demonstration, he did understand that *if* this stuff worked -- and there was suggestive evidence in a few rooms -- competition had just heated up. Recording studios too are getting tchanged. It appears that the number of people willing to set prejudice aside are swelling. But real exceptions exist, too. Franck reported that he did a presentation for a reviewer who professed to hear nothing. Good for him. He'll save a lot of money. On Franck. He'll probably spend it on endless component upgrades. That's how it goes. Addressing room acoustics has never been high on any audiophile's list. That was primarily due to the usual cosmetic shock value. The resonators, diffusors and phase inverters from Paris finally invalidate that excuse.

In closing, how has the sound in the listening room changed after the maestro was done with it? It's gotten more open, faster, more energetic and coherent, bigger and deeper. More refined. *Easier*. I can now play things *far* louder without any discomfort and baring of teeth and claws. Very telling, Ivette didn't even notice this. As a woman, she's usually the first to demand I turn it down. With Franck still around, we rocked out for a stretch while she hogged the hot seat. Most curious was the fact that we could talk at the same time without feeling drowned out by the music.



With all of this said, our subject is far from exhausted. Whole-house resonatoring is a completely new frontier. Incidentally, it's not one Franck seems to have much interest in getting hitched to. He simply used our opportunity to showcase it. But don't expect him to become a traveling Feng Shui man. He's looking to link up with top-level professionals in various disciplines who can recognize his invention for the multi-dimensional tool it is. He needs assistance exploring applications that can benefit people on a more global scale than audiophilia.

Our write-up is merely an introduction to the Acoustic System *concept*. If timing and fortunes align for Acoustic System's maverick inventor, you'll eventually be reading a lot more about him in unexpected places. Franck Tchang is a savant genius. He's completely self-taught, brilliant, astute, wickedly funny, an independent thinker, resourceful and very generous in sharing what he knows. He has created something unique and different. The full implications of it are still shrouded. For audio purposes, things are relatively simple, especially when you work with a basic set of three resonators. Franck himself listened perfectly content to a single silver resonator for an entire year before the creative spark needed and led to the subsequent lineup of metallurgical variants. This expanded the scope of applications in logarithmic fashion. If you don't like the effects, change things (but remember the settling-in phase to give things proper time to stabilize). In some ways, doing the Tchang Tango is like a rain forest pygmy being handed a cell phone. He'll think he's talking to the Big Chief in the Sky. He'll want to make a ritual sacrifice to appease him. Until we understand more about the resonators' multi tasking nature, there's a rather vast conceptual gap. Even talking about it sounds like magick already.

That's why our report has attempted a few somewhat plausible scenarios for certain of the devices' mechanical, vibrational and electromagnetic properties. It's not because we believe that theories are required to reap empirical benefits. It's because many people won't even experiment with novel tools unless prior explanations seem sufficiently sensible or *possible*.



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**PS:** Resonators equalize air pressure differentials. This includes literal ear popping. Now establish the obvious connection to the weather. Weather patterns result from complex interactions between different air pressures and turbulences. The whole planet is encapsulated by atmospheric layers of air. This atmosphere is heating up from environmental abuses. Heat equals pressure. Pressures are increasing, global weather patterns are changing. This field seems primed for the resonator technology if the appropriate scientific community were to get involved and conduct the necessary R&D. The automotive industry is another one. First meetings in Denmark have already taken place. There's nothing ambiguous or imaginary about putting resonators in the engine and driver compartments and experiencing more stable handling in corners and under gusty wind conditions, with less noise, less vibration and better acceleration. A car displaces a lot of air. The faster you go, the more turbulence you create. Add lateral winds and cornering forces, then the resonators. No man worth his engine oil who is attuned to his set of wheels, its customary engine noise and driving behavior, would fail to notice the difference. My little Mazda 2 clearly drives better and sportier now without any engine modifications. Measurements conducted at massive telecom transmitter towers have shown attenuation in the Gigahertz range when these resonators were employed. You can download a [164KB .xls file](#) to view a few exploratory graphs. We also have three .avi video animations that simulate operation of the Basic resonator at **295Hz**, **8800Hz** and **26741Hz** [these large files are between 2.57 and 5.52MB in size]. We'll leave it to the scientists to figure out what it all means...