



# Casting a spell...

## AcouPlex – deceptively simple but wonderfully effective!

by Steve Dickinson

Over the decades, almost since the first day somebody decided to offer furniture to house your hi-fi system, debates have raged about the best material to put that hi-fi system on. Wood has long been a favourite, usurped for a while by metal and glass or acrylic (Perspex), while soaring ambition (and fast rising prices) has seen exotic composites, sandwiches and constrained layers all put in an appearance. Over the years fashions have waxed, waned, and sometimes waxed again. Designs have gotten more complex, more expensive and, as often as not, have come to look less and less like actual furniture. If form follows function, then clearly the function is a darn sight more complicated than just keeping the hi-fi off the floor and preventing the cat sitting on it.

Which, of course, it turns out is exactly the case. We know about the importance of supporting turntables so that, so far as possible, the only vibrations they measure are the ones on the disc, but we now understand a lot more about how microphony can insinuate its insidious influence into all manner of equipment, whether tubes or transistors, rotating disc or solid state. So not only does the integrity of the supporting structure have to make sense, the surface the equipment rests on also

matters. Even the choice of the veneer on wooden shelves can make a difference. Long recognised by speaker builders, it's a fact that somehow got overlooked when it came to equipment supports. One popular rack in the UK had MDF shelves finished with the purchaser's choice of real wood veneers; it turns out that the cherry finish sounded better than the oak, the difference big enough to completely switch the sound quality ranking of two CD players in a direct comparison against each other.

None of this should come as a particular surprise. Chladni's figures – a method of depicting the different modes of vibration of flat plates at different frequencies – have been known about since before the Victorian era. So it's hardly a leap in the dark to suppose that the surfaces we place our equipment on will resonate, and resonate differently, when energised by the music we play or the equipment placed on it: Or that that resonance will vary in intensity but also in locus, with frequency; Or that some of that resonant energy will feed back into the equipment.

The most heated arguments have long revolved around just how audible the effects of all this are. Nobody denies it happens, in a fundamental sense, but ►►

▶▶ there are plenty of people who get quite exercised when anybody else suggests the effects can ever be more than trivial and functionally inaudible. From my perspective, given that the same equipment sounds different on different support stands, and even different surfaces, functionally inaudible it ain't.

## Over egging the pudding?

Time to introduce the latest thing in supporting surfaces. AcouPlex has had a long gestation and it's perhaps worth taking the time to trace that path and understand just how we got to where we are. It can

still use the modular version, the ReVo II and, out-dated as it now is, it's still easily one of the better sounding stands I've come across. Eventually, the odyssey led to PEEK (polyethyl ethyl ketone), an engineering plastic stronger than (and ten times the price of) aluminium. The big surprise came with the discovery that the audible benefits of replacing metal structural elements with PEEK alternatives exceeded expectations. The difference was greater than could be attributed to simply removing the metal. PEEK has applications where vibration control is a potential problem and this happy/accidental discovery led to a tranche of support



trace its origins back a couple of decades, to experiments carried out by a small, specialist audio dealer south of Manchester (partly as a result of the 'vener effect' described above). Their listening tests persuaded them that metals (especially ferrous metals but all metal to some degree) were best avoided anywhere near a hi-fi system. This in turn led to the development of products under their own MusicWorks brand, products that used plastics, notably acrylic, to replace critical components in hi-fi supports and elsewhere. Acrylic shelves were an early success. But although they sounded less overtly coloured than wood or glass, they were no panacea; you could definitely have too much of a good thing and the weight and deadness of an acrylic shelf could sometimes translate into leaden or pedestrian sound.

Replacing the structural elements was trickier, and the quest for a replacement for aluminium or steel led first to the slightly bizarre and mildly Dali-esque ReVo stand which I reviewed for Hi-Fi+ way back in issue 68. I

products and racks making judicious use of the material. Shelves, though, have remained a bit of an issue. PEEK as a raw material really doesn't lend itself to the task. It is awkward to work in sheets, and not inexpensive, so in the short term, work continued with acrylic.

## All mixed up...

Stop me if you've heard this before, but it turns out that a matrix of dissimilar materials can be effective in damping vibration. We see it in the constrained-layer damping of loudspeaker cabinets, turntable plinths, and, sometimes, hi-fi racks. We see it in matrix-based materials and the sandwich structures used in drive units. Vibrational energy is converted at the material boundaries into heat – or maybe light, X-rays or neutrinos for all I know – but whatever the ultimate

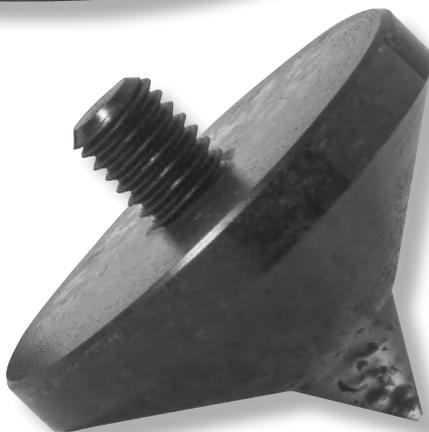
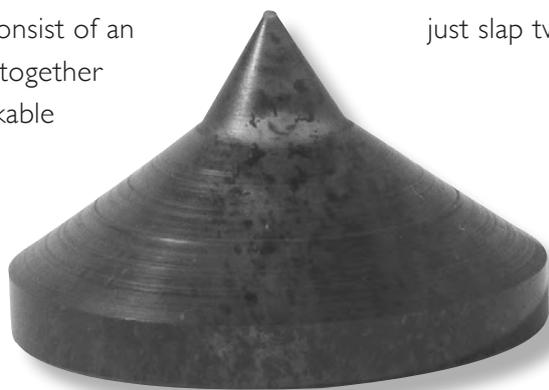
▶▶ destiny of the unwanted energy, the interaction between two different materials can be an effective way to manage it. Plenty of well-regarded products have exploited these broad principles over the years. Leak and Focal drivers are cases in point, as is the use of sandwich construction in Clearaudio or VPI turntable plinths. Panzerholtz is another example, a wood-based matrix that finds its way into turntables and cartridge bodies.

Bamboo has become popular in recent years. I know RG's a fan of the cheap and cheerful IKEA bamboo chopping boards and they're definitely a great way to explore support possibilities for very little outlay. Like Panzerholtz, the bamboo products consist of an organic material bound together to form a machine-workable substrate, but unlike Panzerholtz it's (relatively) light in weight so designs that eschew mass, like the Quadraspire tables, are finding new ways to exploit its energy management potential. The Harmonic Resolution Systems racks use various sandwiches or constrained layers in their isolation bases and platform shelves. Grand Prix Audio, drawing on its motorsport expertise, was a pioneer in using carbon-fibre, which exhibits characteristics common to Panzerholtz or bamboo in being one material bound by another, but also adds lightness and tenability to the equation. Colin Chapman would doubtless have approved.

### The best ingredients...

And there have been other products that use amorphous mixtures, like Clearlight Audio's RDC material, found in support cones and occasionally as additional damping in equipment platforms. The important thing is that there should be an opportunity for energy transfer between the two materials so as to dissipate and control that energy and minimise

any negative effects from it rattling around in your system. Whether that energy transfer happens at levels meaningful to our objectives and in ways relevant to what we want to achieve, is key to all this. Engineered solutions, like HRS or GPA, identify an issue and devise an engineering solution. And if the problem they've identified and managed is one your system suffers from, they can be astonishingly effective. Others, and the developers of AcouPlex will doubtless recognise this, are more like an educated version of trial and error, using careful listening tests to home in on an effective solution. You can't just slap two



dissimilar materials together and hope for the best – and sometimes throwing bleeding edge technology at it isn't the solution either. Manchester happens to be the home of the Graphene Institute - the Nobel Prize for the discovery of Graphene went to a Manchester University team - and AudioWorks did some early experimentation with Graphene particles suspended

in an acrylic medium, but listening tests quickly showed that this was barely any better than unadulterated acrylic. What was better though, and not just by a small amount, was PEEK particles suspended in acrylic; after further refining the mix and proportions, the best-performing combination was duly dubbed AcouPlex.

AcouPlex isn't mass-produced in 8' x 4' sheets like acrylic, but is cast and then trimmed or machined as necessary. Unfortunately it's an expensive process. The amount that can be made to is limited by the small batch production, with the associated costs



▶▶ that implies. Which brings me to the vexed question of value (tries on the GY8 'Voice of Sanity™' hat for size): I've not found a totally reliable measure of value, especially with something as subjective as musical enjoyment, but one helpful principle I try to keep in mind when assessing what some refer to as 'accessories' or 'peripherals', is to ask myself whether I could achieve a similar lift in performance by upgrading an active component and, if so, what sort of cost that would incur. In the case of equipment supports, mains and signal cabling, the answer has often been "no, not really – not even close".

The improvements have also tended to be of a different nature to those you get from upgrading active components. They're more about letting the existing components give more of themselves, releasing the system's brakes, rather than an overt change in presentation. One aspect of the value is in getting more of what you, presumably, already like about the stuff you've already bought, and paid for! The other is in the increased potential you can realise from products yet to be purchased. But it's still relevant to ask yourself whether the *magnitude* of the change is in some way comparable to a hardware upgrade, and if so, what would that change cost?

### Bringing out the flavour...

My first experiment with AcouPlex was in the form of replacement shelves on my ReVo II table. The ReVo II still has the swoopy, skeletal structure and can still be used in 'virtual shelf' mode where the components rest on the structural bars of the rack directly, not unlike a somewhat simpler version of the Stillpoints approach; but it can also now hold acrylic shelves, the better to accommodate a wider range of products, as well as providing some means of levelling. For quite some time now I've been using shaped acrylic shelves, treated on the underside with a damping layer of PEEK film, which have been a useful upgrade over rectangular, undamped acrylic, and pretty much

as effective as the 'virtual' shelf arrangement the ReVo can offer. The acrylic seems to create a quieter, calmer background for the system to work from when compared to veneered wood, or glass, shelves, but it's quite 'massy', which can often hold things back a little (the rationale behind the 'no shelf' arrangement of the original ReVo table). Leaving everything else the same, I simply swapped the existing shelves for similar-sized rectangular shelves in AcouPlex.



With the AcouPlex shelves in place, there was an immediate increase in the sense of spaciousness; there's a more generous, expansive quality to the sound, a greater freedom to allow the music to breathe. The system now has more scope to scale up, to generate a bigger, deeper, more energetic soundscape. Instruments

develop more character, phrasing becomes broader and more expressive, the musical content reveals itself a little more clearly. You hear this even when substituting just one shelf, and the effect grows as you replace the others in succession. The opening of Chick Corea and Gary Burton's take on their old warhorse 'La Fiesta' on *The New Crystal Silence* finds our two heroes noodling around each other before settling into their groove. If you've heard either of these performers live, you'll know that this noodling isn't the aimless ambling around it might appear to be. With a sheet of AcouPlex under my Accuphase DP570, it's all the more evident that this noodling is in fact scene-setting, preparation for what comes immediately after. But what really comes across is just how much these performers, and indeed the entire Sydney Symphony orchestra, are having an absolute blast on this recording. There's less sense of inhibition, less feeling that the system is 'gating' or holding the music back, with greater dynamic freedom on both the micro- and macro-scale. So we get more subtlety from the soloists, a clearer feeling of interplay and the musical conversation – and then we get an orchestra which isn't ▶▶

▶▶ afraid to let rip when the occasion demands. It's joyous, life-affirming stuff. It's what we pay all this money for.

This musical spaciousness manifests in two ways. First, there's the physical sense of air and space, room to breathe, in and around the instruments and the music. But there's also a temporal spaciousness; it's as though the notes have all the time they need to properly develop and decay. You hear them more fully realised, and that tells you a lot more about how the musician shaped those notes, how they played them, so you get that double whammy of better instruments, played by better musicians. Don't go thinking that this freeing up within the time domain leads to looser timing. The freedom for the individual notes just

venue, acoustics and incidental noise notwithstanding. The recorded version rarely approaches that ideal. The note gets subtly bent out of shape, blurred and smeared, modulated to some extent by all the other notes being reproduced at the same time, even if only infinitesimally so. AcouPlex seems to increase the equipment's ability to reproduce and preserve each, individual note. There's more shape, more definition, more raw information to each note, but there's also clarity to the space between and around it. Because there seems to be less acoustic feedback reaching the carcass of the equipment and less internal vibration



makes it all the clearer how, where and when they fit into the whole, and indeed why they were put there in the first place. I started writing while thinking about how to describe the effect on the **sound**, but I think that does it a disservice. It's much more about the effect on the **performance**. I'll try to describe what I hear in the sound, but the material benefits come from what that does to the listener's perception of the music.

So, in the basic terms, it's as though the notes have coalesced into a more concentrated version of themselves. Every note is both more contained and freer from constraint. And yes, I'm aware that sounds somewhat paradoxical, but bear with me. When we hear live music, we hear each note exactly as it was bowed, plucked, blown, struck, stroked or sung. The note's envelope reaches us more or less intact –

energising the innards (as long as you've coupled the chassis to the AcouPlex shelf), the music has less opportunity to interfere with itself. It's pretty clear that microphony in these terms is not a trivial effect and its influence on the timing and smearing of notes is subtly destructive to the clarity and comprehension of the musical message they convey.

It's like the cask strength versus the bottle strength version of your favourite single malt whisky; or espresso versus Americano; fresh leaf tea from a pot versus teabags in a mug. Yes, we can enjoy wine in a paper cup on a picnic, but you'll enjoy it even more from a decent glass. The basic experiential elements are not altered, but they are heightened in intensity – and our senses respond to that.

This is not about deconstruction. My attempts to analyse what's happening at the level of individual notes or musical elements shouldn't leave you with the idea that AcouPlex pulls the music apart. It's why I was



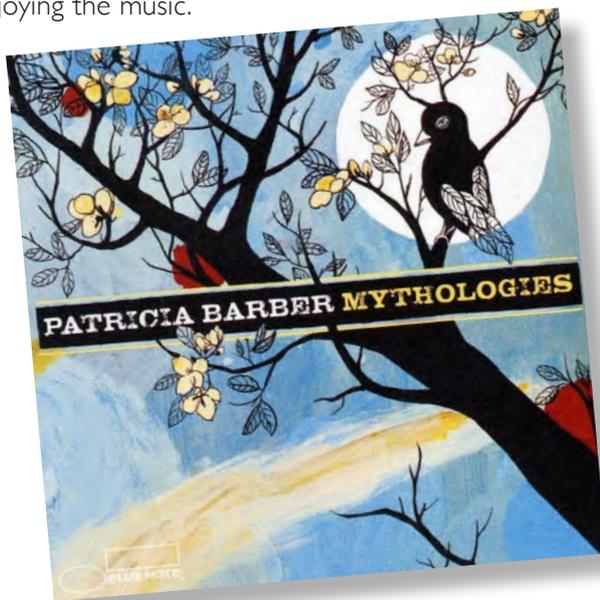
▶▶ reluctant to get too buried in the question of 'sound'. Instead, what it's doing is helping the system present the music as a whole, as a single, complete entity assembled from individual but related musical parts, in much the same way as you do at a live performance. It's an important step with significant implications. Your perception, your brain, is freed from some of the inevitable 'post-processing' it usually has to do when listening to recorded sound, and can get on with the much more agreeable task of just enjoying the music.

AcouPlex seems to have this effect regardless of what it sits upon. I've used slightly smaller sheets simply laid over shelves made from acrylic (the MusicWorks ReVo), wood veneered MDF (a Lateral Audio CadenzVr), and directly on a wooden floor. I've used cones under equipment, spikes under loudspeakers and small disks as floor protectors under metal spikes. I've replaced the ReVo with its successor, the MusicWorks ReVue and added AcouPlex platforms to its acrylic shelves, and AcouPlex discs under its cone feet. I've used it with relatively inexpensive kit, by Amphion, Russell K, Hegel; more expensive (Accuphase, FinkTeam, EgglestonWorks); and really expensive (CH Precision) and in all cases, the response, the change in the level of the performance, has been on similar lines and to a similar extent. So, in my experience at least, it's pretty agnostic as to what you partner it with. As well as the spaciousness and the freedom in timing, probably the most common effect has been how my system lets me hear and understand the musicians' phrasing, the way they shape their lines so you hear how the music fits together and flows, how it drives on, or languidly lingers; that moment of surprise when what you thought was just a throwaway line develops a new significance. When Patricia Barber uses a backing vocal group on 'The Hours', a track on *Mythologies*, AcouPlex shelves under CD and Amp resolve those voices so you hear a group of individuals, rather than a single blended mass; there's a spatial element to that, but it's structural too. You get to hear how each voice contributes its character to the whole. All of a sudden, the backing vocals are a

vital thing, a key ingredient, not just part of the seasoning. It's entirely clear what Patricia Barber wanted when she chose this particular ensemble.

It's still early days as far as AcouPlex is concerned. There's a range of different products as well as a complete rack in development. One intriguing prospect (if only because of the undoubted furore it will provoke) is a replacement arm-board and sub-chassis for the evergreen Linn LPI2. But one of the material's

real benefits is that it seems to deliver at whatever level you buy in. If you've got support tables or platforms already, there's the intriguing prospect of substituting AcouPlex for the existing shelves or platforms. You could add AcouPlex 'slabs' between the equipment and what it's already sitting on. Or you could simply use AcouPlex cones to get more of a 'virtual shelf'.



The further you travel down the AcouPlex path, the greater the benefit, but the good news is that you in doing so, you are also maximising your return on existing investment. You can improve the performance of an existing support system, but in doing so you'll also be realising more of the potential (and more of what you like) that is lying dormant in your electronics.

### You can have your cake...

Sceptics (and not a few dealers) might well be muttering about, "just upgrading the electronics." Well, you could do that, but as I suggested earlier, the benefits you'll achieve using AcouPlex are different to and difficult to achieve those you get through switching electronics. So my answer to that suggestion would be, "Well yes, and no; but mostly no." Firstly, while AcouPlex isn't cheap – a set of cones will set you back three or four hundred pounds, a small shelf a few hundred more – that's a lot less than a remotely equivalent performance upgrade from even budget electronics. Once you start talking serious kit – Accuphase, let alone CH Precision – then



▶▶ the cost differential becomes starker still. And how are you defining 'better' here? Are there trade-offs between what you're evaluating and what it may replace? Which brings me to my second point...

I've used AcouPlex to similarly good effect under everything from budget kit to the sort of equipment I can only dream of owning. In every case, it has played to the strengths of the equipment at hand, allowing them to become better versions of themselves. So as and when you do decide to upgrade the electronics, you're doing so knowing you just how much performance you've already paid for, and what to demand from what comes next. It makes for a more surefooted passage of the upgrade path – and that delivers more performance for your money, each step of the way.

This is not a new story. First get the best performance from the system you've got. That way you will hear more clearly where to go and how to get there. But if you want to talk value when it comes to a product like AcouPlex, it's a major factor. It's not simply what investing in superior support does for your system now. It's what it does to the value of your future investments. Tread this particular path, use well-chosen supports and careful setup and you are going to be astonished just how much performance you can wring out of even modest equipment. When it comes to choosing those supports, you'd be well advised to seriously consider AcouPlex. It has a way of consistently delivering musically important results it's hard to gain anywhere (or any way) else in your system. Whether it comes as a shelf or a slab, a

disc or a cone, its musical impact is as obvious as it is positive. Walk this way? AcouPlex has taken me way further than ever before.



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Prices:	
Shelf (550x420x15mm)	£899
10mm Platform/shelf	£500
40mm cone/spike	£99 each
40mm disc	£25 each
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Linn LP12 sub-chassis	£600