

## Positive Feedback Online – June/July 2002

# Doctor Platus' Phenomenal Prototype Platform

by Dave Glackin

Saul Sokolsky of The Audio Enthusiast in Palos Verdes, California called to tell me that he had just heard an audio device like no other he had ever heard, and that I had to hear it but he couldn't tell me what it was. My first thought was, "Oh no, not another audio device. How many things does the audiophile world need, and what are we still without? How many more truly significant improvements can be made, and how many 'improvements' have already been relegated to the dustbin of history?" But Saul inveigled me to get myself forthwith to his home-cum-dealership, noting that I wouldn't be sorry. And he was right. But I'm getting ahead of myself.

Dr. David Platus is President of Minus K Technology in Inglewood, California ([www.minusk.com](http://www.minusk.com)). He manufactures leading-edge vibration isolation platforms that are intended to all but eliminate building and ground vibration in situations involving very sensitive analytical techniques. Typical applications include measurements made on the subatomic level. Atomic force microscopes (AFMs) reportedly achieve their lowest noise level ever when isolated with the Minus K platforms. The world's leading AFM maker has reportedly built a Minus K platform into one of its instruments. The Institute for Human Brain Research in Sweden is reportedly using Minus K products in their highly sensitive low-voltage fluorescent die imaging, which measures neural activity in the brains of animals. A company that wants to suspend and isolate a 10,000-lb. granite slab has reportedly come to Minus K for help. More recently, Minus K was asked to isolate a 70-ton item.

The application that most impresses me is that the Jet Propulsion Lab here in Pasadena is using three of David's platforms to isolate its 4300 lb. Space Interferometry Mission (SIM) test structure. This spacecraft is intended to use optical interferometry to measure the distances between objects in deep space with unprecedented precision. The technique uses spaced optical elements, the relative position and orientation of which must be known with nanometer precision. The Minus K device was the only isolator that met the specifications for the test structure. Also in the space biz, David's platforms are being used at Ball Aerospace & Technologies to isolate the Cryogenic Telescope Assembly (CTA) in thermal vacuum tests. The CTA is the eyes of NASA's Space Infrared Telescope Facility, a mission I almost wound up working on in 1978 when it was first being planned.

For many years now, people have been telling David that he should develop a platform for audio applications. Your humble reporter is the first member of the audiophile press to have heard what one of David's platforms can do, and IMHO, the results of our two listening sessions warrant the development of a platform specifically designed for audio applications, so read on.

Upon entering Saul's home for the first listening session, I met Dr. David Platus, and was somewhat startled to meet his doppelganger, his twin brother Daniel. David proved to be a very engaging, serious, and obviously capable individual. He unveiled a modified version of his "Small Biscuit" isolation platform, which is 16.2" X 16.2", with a height of 8.5" and a weight of 60 lbs. The natural frequency of this unit is adjustable down to 0.5Hz or less, which is quite impressive. When adjusted to 0.5Hz, vibrations both vertical and horizontal at 5Hz are attenuated by a factor of approximately 100. Ballast weights needed to be placed on the top because the turntable we used in this audition was lighter than the minimum intended load. This is neither an active nor an

air flotation device. Its isolation is achieved purely by mechanical means, using a principle called "negative stiffness" (hence the company name Minus K, see the web site for details). David and his brother ministered to the unit for a bit, until it would "float" properly with the intended load. In this initial audition, the Small Biscuit was used only under the turntable. For this session, the vertical frequency was set at  $< 0.5\text{Hz}$ , and the horizontal frequency was  $1\text{Hz}$ . The standard Small Biscuit was modified to have stiffness in the yaw direction (rotation about the vertical axis), since yaw movements are undesirable in a turntable. (Incidentally, this was a manually adjustable unit. On the Minus K web site, you'll also see servo-system-controlled units.)

The associated equipment used in this session consisted of an Immedia RPM 2 turntable with a Clearaudio linear tracking arm, a Transfiguration Spirit cartridge, a Herron tube preamp, tube monoblock amps by Bill Chater, and the Nestorovic Reference Epsilon loudspeakers, the ones that make liberal use of concrete inside the cabinets. The turntable and electronics were on a Merrill stand. For those of you who don't know him, Bill Chater is widely recognized for electronics designs that have appeared for years in the pages of *Audio Amateur*, and he is also a violinmaker par excellence. The listening room at The Audio Enthusiast is large, comfortable, and well suited to testing audio components, with a wide range of equipment to choose from.



In the interest of saving time, we listened to the unit floating, and then listened to it locked down, still in place under the turntable. The right way to perform such an audition is, of course, with the unit floating, and then with the unit removed entirely. The results of this session were so startling that that is exactly what we did in the second session, some weeks later.

The second session was done with a larger and heavier BM-1 Biscuit, with a top plate dimension of  $24'' \times 22.5''$ , and a height of  $8.5''$ . The vertical frequency was approximately  $0.5\text{ Hz}$ , while the horizontal frequency was slightly higher. This unit was also modified to have stiffness in yaw. Associated equipment in the second session was an Amazon Model 1 turntable with a Morch DP-6 tonearm, a Koetsu Urushi cartridge, a Hovland preamp, Nestorovic Alpha-1 monoblock amps (upgraded to NA-1s), and Nestorovic Type 5 loudspeakers. The turntable and electronics were on the same Merrill stand. For these auditions, we used the "Take Five" cut, 33 rpm version, on the Classic Records reissue of Dave Brubeck's *Time Out*, the Sheffield direct-to-disc recording of Harry James' *The King James Version*, the Chesky Records reissue of Rimsky-Korsakov's *Scheherazade*, and the Alligator reissue of Sonny Boy Williamson's *Keep it to Ourselves* (only because I did not have the Acoustic Sounds reissue handy). While the differences heard with the platform floating and locked down in the first session were startling, the differences heard in the second session, with the platform in place and then removed, were even more startling.

With the Minus K platforms in place and floating, there was a purity, transparency, and sense of harmonic rightness that was mesmerizing. Instruments sounded much more like real instruments and voices sounded like they were in a real acoustic space with real air around them. The ability to see into the soundstage was greatly increased. The improvements in the bass were perhaps the most captivating of all. This is the biggest improvement in turntable isolation that I have ever heard. Speaking of bass response, I am extremely familiar with the Classic Records reissue of *Time Out*, having heard it on many systems. The acoustic bass on "Take Five" has always sounded plummy to some degree, sometimes more, sometimes less, but never as fleshed out as I thought it should be. That's not to mention the drums, which have always sounded muddled. With the Minus K platform in place, I felt like I was finally hearing the acoustic bass line and the drums on this record as they

were meant to be heard. For the first time in my experience, the acoustic bass sounded like a bass, and the drums were fully fleshed out, with phenomenal detail. This unmistakable improvement grabbed our collective attention like nothing else in these sessions. Saul Sokolsky, who is also very familiar with this record, concurred that he had never heard it sound nearly this good.

Time will tell, but my impression is that this product, when adapted to our marketplace, may become the best vibration isolation product out there, bar none. It has tremendous potential for use under turntables, tube electronics, CD transports, and many other kinds of equipment. Remember, you heard it here first. The next step is to insert a platform into my reference system for extended tests, with a larger top plate to accommodate my VPI TNT. When this unit is past the prototype stage, a shootout with a Vibraplane might be entertaining (if not back-straining).

David has substantial work to do to convert the prototype to a consumer unit. First, 8.5" is too high for audio applications. Second, it could benefit from more intuitive controls. Third, it needs to be modified to handle the wide range of component weights that will be encountered. Finally, there is cost. As you might imagine, these babies ain't cheap, but the standard, manually adjusted units are not horribly expensive by high end audio standards. Dr. Platus is making significant progress, and has stated that a relatively low-cost Biscuit will be on the market by around September 2002. If he succeeds in meeting that goal, I plan to be the one to bring you the news first.

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