



Equally at home in the mastering domain, probably the most demanding audiotechnical discipline, and in the recording studio, Friedemann Tischmeyer has acquired an excellent reputation internationally. His tutorial videos on DVD and his mastering book have sold worldwide in huge numbers. Currently his main focus is the loss of dynamics in music, but also the health consequences resulting thereof. Norbert Lehmann (Lehmannaudio) in an interview with Friedemann Tischmeyer.

Master of Dynamics

Fig.: Friedemann Tischmeyer visiting the Gadgetbox Studio, Santa Cruz (www.gadgetbox.net)

NL: Since when have you been active in the audio business and what is your personal relationship with music?

FT: My musical career began at the age of five when I was playing the recorder. Later as a professional guitarist I was already strongly involved with the subject of technology to provide the best possible sound on stage and in the studio. Long before the first Midi-controlled effects board I owned a completely remote-controlled guitar rig that occupied a whole VW bus. Shifting my interests towards technology and engineering was therefore only a logical progression. Being an engineer today I'm lucky to have a musical background knowledge, aural training and skills in the theory of harmonics on hand. In the daily studio routine, even at mastering, this often comes in useful and leads to decisions that otherwise would turn out different without this experience.

NL: Roughly, how many CDs did you master so far?

FT: Ten years ago I had already done more than 300 masterings. This can be traced back easily, because in those days everything was stored on DDP tape backups. Since hard drive space has become so cheap, I stopped counting at 500. Today I can add another 50 to 80 masterings per year, as my sphere of action has broadened and I

also need room for other activities like mixing, workshops, writing books, producing tutorial videos as well as the foundation work.

NL: Who are the best known artists for whom you have been doing mastering work?

FT: The greatest celebrities are artists like Steely Dan, Iron Maiden, Johnny Cash, Eric Burdon etc., for whom I did lots of masterings and remasterings on behalf of the Institute of Art. Due to my teaching job my client structure has changed significantly. One of my specialities is to cultivate mastering as a process of development and learning. As a consequence of the readily available low-cost production tools, the customers – often young sound engineers and producers – realise budget independent productions on their own funds, which, for lack of sound engineering experience and because of a mediocre monitoring environment, often still reveal some potential for improvement. A focused cooperation where the mastering studio takes over a guiding role, can bring forth huge increases in quality for reasonable budgets. This work is much more rewarding than to master a “fat sausage“ on the quick, as I use to paraphrase those overcompressed masters as they are almost invariably requested by major record companies.

NL: Overmodulated masters are becoming an ever more important topic. How can a master be overmodulated even when you still have more than 1dB of headroom, i.e. modulation reserve?

FT: When converting the digital stairs back into the round analogue world, signals cannot be cut off at 0dBFS, but will overshoot beyond zero just because the analogue world is not angular. In other words: If you have ten samples in a row which have been limited (cut off) at minus 1dB, then the analogue waveform will not be able to follow this artificial curve, but continue to rise for a while, then exceed zero and fall again. Top-level D/A converters do tolerate up to 6dB of overmodulation. But there are many hifi devices on the market whose converters will even respond to 0dBFS (full-scale) of a single sample with distortions. Not to mention the numerous overmodulation chances with data compression like e.g. mp3 encoding. Because of the data reduction based on the masking effect we have some kind of energy reallocation here which produces enhanced peaks and a reduced loudness (RMS). The greater the density of the source material, the higher distortion figures are to be expected in the data-reduced copy. But it's also true the other way round, the lower the data rate (i.e. the higher the data compression) is. Motivated readers who have an audio software may take a undistorted track

from a CD (wave), convert it into mp3 and then back into wave format. The result will suffer from overmodulation.

NL: *Dynamics is one of the most essential means of expression in music. Much is being written about the "Loudness War", i.e. the very loss of musical dynamics. What can musicians and music listeners do to bring the dynamics back into the music?*

FT: It's a bit like with premium foods. If the demand for dynamic music goes up, the market is bound to follow some day. Our enemy is the adaptation effect of the human ear. Often the drawbacks of undynamic music are merely perceived on a subconscious level, which results in people turning down the music or even turning it off completely. However, people who are not accustomed to a high sound quality regrettably tend to turn up hypercompressed music, hoping to be able to compensate the mutilated transients with loudness. This is what makes hypercompression so dangerous with respect to hearing damages.

NL: *What are the consequences – also with reference to health –, if the trend towards ever less dynamics in pop music will not be stopped and reversed?*

FT: All collected studies and empirical findings suggest that hypercompression and NOT sound pressure level (SPL) is responsible for the extreme rise in youth deafness! According to the European Scientific Commission, up to 10 million listeners in the EU are already threatened by a permanent hearing loss caused by the

long-term consumption of overly loud music. Hypercompression plays a major part here, since this kind of music exerts much more stress on our ears than dynamic music with the same sound pressure level. Heavy compression will lower our ability to follow spoken dialogues

The DR Meter developed by Friedemann Tischmeyer is a PC plugin indicating the dynamics of the audio material. With it you can easily determine the degree of compression of the music you are listening to.

As a general rule: the higher the DR value, the better.



under certain conditions and requires much more concentration for this. You can visualise the acoustical burden if you picture the auditory cilia which are stimulated by a transient, hence an impulse. In dynamic music, a loud sound event which sends a strong stimulus to the auditory cilia is followed by a natural pause with softer events. In this context a statement by Miles Davis comes to my mind: He says music is the rests between

the notes. The bad thing is that a European commission is now pushing forward the loudness war by limiting the headphone playback level to 80dB/SPL. This solely creates an ideal prerequisite for the record companies to keep compressing CDs to death, because under many listening conditions dynamic music would be too soft on those playback devices. We are witnessing a situation worsened by ignorance with intent to improve noise control and hearing protection. In order to deal extensively with these topics, the Pleasurize Music Foundation urgently needs further support.

NL: *When do you use headphones for mixing/mastering and what's the good of this?*

FT: One of its biggest advantages is the complete isolation from the room acous-

tics. Monitoring via headphones is therefore a perfect complement for judging and finetuning the nowadays so critical sub-bass and bass range. The quality of a headphone amplifier becomes apparent in the low frequency range, since middle class devices have a flabby bass reproduction. I use the Linear headphone amplifier and this unit is phenomenal! It opens up an entirely new dimension of headphone work for me, because with an adequate quality headphone set it means listening with almost no fatigue. Another application is to judge stereo enhancement or stereo base stretching effects. Due to the extreme channel separation over headphones, the stereo image is excessively bloated. This makes it easier to assess very subtle effects which are barely audible over loudspeakers. Sound restoration and all sensitive editing works can be performed outstandingly well using headphones, as long as they offer a good and comfortable fit. Just watch out here, since a rather diligent sound engineer might as well get bogged down in details because you hear much more than is actually needed for many applications. Here we must stretch a point then. ■



Friedemann Tischmeyer's DVDs entitled "Audio-Mastering with PC Workstations" are an international bestseller in the field of audio technology.

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