

"POST AUDIO FAQ's"

Frequently Asked Questions About Film & TV Post-Production

[by Bruce C. Nazarian M.P.S.E.](#)

- [What is Audio Post-Production?](#)
- [What is involved in Audio Post?](#)
 - [Production Dialogue Editing](#)
 - [ADR](#) (Automated Dialogue Replacement - if needed)
 - [Sound Effects](#) Editing and Design
 - [Foley Recording](#) (human sound effects recorded in sync with picture)
 - [Music Composition](#) and [Music Editing](#)
 - [Mixing](#) (also called re-recording)
- [Where does post-production begin?](#)
- [What does the production sound mixer do?](#)
- [We are done shooting...now what happens?](#)
- [Do I need Audio Post during editing?](#)
- [What is the locked cut ?](#)
- [What happens once the cut is locked?](#)
- [What actually happens after 'spotting'?](#)
- [What happens during the mix?](#)
- [When mixing is done, what then?](#)
- [What about optical soundtracks?](#)
- [How do I get an optical soundtrack?](#)
- [What about: THX - Dolby - Ultra*Stereo - DTS - SDDS?](#)
- [I have got a video project - What's this DVD, AC-3?](#)
- [My mix sounded great on the mixing stage - but my print isn't in sync!](#)
- [My foreign distributor says I need an "Emenee" to make a sale?](#)
- [Do I need to know about the academy rolloff?](#)
- [How do I get more info about Surround Sound Licensing?](#)

What is Audio Post-Production?

Audio Post-Production is the process of creating the soundtrack for a visual program of some kind. Ever since silent movies began to talk, filmmakers have been looking to control and improve the quality of the sound of their creation. As soon as creators realized there was a way to control and enhance the sound of their pictures, Audio Post was born, and has been a fact of life ever since. In Television, audio was originally "live", like the visual program it was part of. As TV evolved, and the art form grew to include "videotaped" and "filmed" programming, the need for Audio Post increased. Nowadays, it would be difficult

to find any feature film or television show that hasn't been through audio post.

What is involved in Audio Post ?

Audio Post usually consists of several processes. Each different project may need some, or all of these processes in order to be complete. The processes are:

- [Production Dialogue Editing](#)
- [ADR](#) (Automated Dialogue Replacement - if needed)
- [Sound Effects](#) Editing and Design
- [Foley Recording](#) (human sound effects recorded in sync with picture)
- [Music Composition](#) and [Music Editing](#)
- [Mixing](#) (also called re-recording)

What does all that mean in English ?

It's really pretty simple, once you know the breakdown::

- **Production Dialogue Editing** - In order for the production audio recorded on the set or on location to be properly mixed, a **Dialogue Editor** needs to properly prepare it. This means locating the proper **take** from the recorded production audio, checking sync (so it actually works with the picture properly), and eliminate extraneous noise so the Mixer has clean dialogue to use during the **Mix**.
- **ADR [Automated Dialogue Replacement]** - In cases where the production audio is too noisy, or otherwise unusable (bad line reading, airplane fly-by, etc.) the **Dialogue Editor** will "cue" the line for **ADR**. This means replacing that line or lines of dialogue using the **Automated** process of **Dialogue Replacement**. This process takes place on the **ADR Stage**, a specialized recording studio where the actor can record lines in sync with the picture.
- Once a replacement line of dialogue has been recorded, the Dialogue or ADR Editor will check the sync carefully, editing the take if necessary to

precisely match it to the picture, and prepare it for the Mixing Stage. This process is also known as "**looping**".

- **Sound Effects Editing and Design** - Ever wonder how they made the sound of Darth Vader's helmet breath, or the Empire's Tie Fighters, or that great train wreck sequence from "The Fugitive"? - **Sound Effects Editors** and **Sound Designers** are how. The process of adding sound effects (*backgrounds* like: air, rivers, birds, traffic, and *hard effects* like: gunshots, door slams, body falls, etc.) has been the domain of sound effects editors for years. Although originally edited using 35mm magnetic film, recent years have seen the development of many different Digital Sound Editing systems. More and more projects are using digital technology because of the efficiency and quality it can bring to sound effects. Sound Designers use digital and analogue technology to create sound effects that have never been heard before, or to artistically create specific "mood" sounds to complement the director's vision of the visuals.
- **Foley** - Taking its name from Jack Foley, the Hollywood sound effects person generally regarded as the "father" of these effects, Foley effects are sounds that are created by recording human movement in sync with the picture. Different from the environmental backgrounds and hard effects that comprise edited sound effects, Foley effects are sounds like footsteps, prop movement, cloth rustling, etc. The players involved in this process are the **Foley Mixer**, who records the sounds, and the **Foley Walkers** who create those sounds. After the Foley Effects are recorded, the **Foley Editor** will make any slight timing adjustments necessary to ensure that they are exactly in sync with the final picture.
- **Music Composition** - Music for film/TV falls into three general categories: Score, Source and Songs. The **Composer** is the individual hired with the responsibility to prepare the dramatic underscore. Source music is that music we hear coming from an on screen or off screen device of some kind; some examples are radio source music, phonograph records, TV show themes, when seen on a TV set in the shot, and many other similar variations. Source music may be original, or licensed from a number of libraries that specialize in the creation of "generic" music. Songs may occupy either function, depending on the dramatic intent of the director. Using "Pulp Fiction" as an example, Director Quentin Tarantino hired a *Music Supervisor* (Karyn Rachtman, FYI) to "score" the picture using

period music of the 1970's almost exclusively. Most contemporary films use a combination of score and source music.

- **Music Editing** - The **Music Editor** assists the Composer in the preparation of the dramatic underscore. Frequently working also with the *Music Supervisor* the Music Editor will take timings for the Composer, (usually during a *spotting session*) in order to notate the specific locations in the film where underscore or source music will punctuate the narrative. Once the underscore is recorded, and the source music gathered, the Music Editor will usually be the person who edits or supervises the final synchronization of all music elements prior to the mix.
- **Mixing** (also called **Dubbing**) - The **Mixers** have the responsibility of balancing the various elements, i.e., - the Dialogue (and ADR), Music, Sound Effects, and Foley Effects, in the final mix. The *Dialogue Mixer*, (also called the *Lead Mixer* or *Gaffing Mixer*) commands the mixing stage; his partners in the mix are the *Effects Mixer* and the *Music Mixer*. On large features, it is not uncommon to have an additional mixer handling just the Foley effects. On huge pictures with tight deadlines, it is possible that several teams of mixers are working simultaneously on numerous stages in order to complete the mix by the release date.

Where does post-production begin ?

If you haven't shot your film yet, it begins before you shoot - by selecting the finest production dialogue mixer you can afford. The little bit extra paid to a great production mixer can save you **tenfold** later in post-production.

What does the production sound mixer do ?

The production mix team are the individuals charged with recording your live dialogue, in sync with the camera team. The Production Sound Mixer is your most important ally at this stage in the movie's production. Although you will be anxious to complete as many setups as possible during each shooting day, a little extra time given to the sound mixer to allow him to capture scene ambience (called room tone) will pay off handsome dividends later during our dialogue editing. The production mixer will have with him a boom operator, who handles the boom mics, and usually a cable person, who will be in charge of wrangling the audio cables needed to mike the set appropriately. Usually they will record on a Nagra recorder, but digital recordings on Portable Time code DAT machines are becoming more common.

We are shooting our film on location...what now ?

Generally, each day after the completion of the shoot, the production audio rolls will be sent to an audio post house for transfer to "dailies" form. If the film is being edited filmstyle, using 35mm mag audio and film dupes (as opposed to electronically, using an Avid or Lightworks edit system), the production select takes will be transferred to 35mm mag film. This sprocket-based medium will allow the film editor or assistant to sync that day's select film takes with the audio track that corresponds to it.

If the production is being edited electronically, using a computer-based edit system, the options are a bit different. Frequently, a video post house will be engaged during shooting to telecine the selected and printed film takes. In addition, they will transfer the production audio from Nagra or DAT and generally synchronize the dailies onto some form of videotape, for later digitizing into the Avid or Lightworks editing system. Syncing dailies at the video house eliminated the need for the assistant film editor to do it, and allows the assistant to load the editing system instead. An important task to accomplish during the digitizing is for the assistant to correctly log in the dailies time code that is recorded on the Nagra or DAT location tracks. This will allow the EDL (edit decision list) that is created later on to accurately reflect the original time code that was shot with that scene, and allows the audio post house to electronically automate the re-loading of the production dailies, should they need to be replaced.

And this goes on all during the filming?

Yes. Dailies transfers will continue until there are no more dailies coming in, and shooting has wrapped. During this time the editor may also need reprints of

previously transferred takes, or prints of previously unprinted takes. They are processed in the same manner.

We are done shooting...now what happens?

Now the real fun begins. The editor has been syncing dailies all during shooting, choosing which scenes should begin to form the final cut. During the next several weeks, the process of editing will continue as the decisions are narrowed down to final choices. It is at this time that the final form of the film begins to take shape. Although the film editor may have been assembling the "editor's cut" during the shooting period, the first formal edit period is generally referred to as the director's cut, and it is when the first full assembly of the film is refined.

Do I need Audio Post during editing?

Well, yes. During the editing you may still need reprints of selected takes or outtakes. The audio post facility will duplicate these for you. But the real job is starting to come into view: the locked cut.

What is the locked cut ?

In short, the final version of the finished film. Although it may receive a small edit here or there in the next few weeks, the film is essentially "locked" into this form.

What happens once the cut is locked ?

Audio Post begins now in earnest. Once the cut has been locked, the film can be spotted for the placement of sound effects and music. The Supervising Sound

Editor, the Director and possibly the Film Editor and Composer will gather at one or more spotting sessions to determine the film's audio post needs. "Spotting for music" is the process of viewing the locked cut and deciding where the music score will be, and where the source music will be needed. "Spotting for sound" is the process of determining:

- if and where any dialogue problems may exist, so that ADR can be cued to be recorded
- where sound effects are needed and what kind
- what Foley effects will be needed in the film, and where
- If Sound design (the creation of special sound effects), will also be needed.

What actually happens after 'spotting'?

The real job of audio post has now begun. In the next weeks or months, the sound editors will locate and synchronize all of the sound effects needed in the film. If necessary, they will create Field Recordings of new sound effects needed for the film. The **Foley** supervisor will cue all of the Foley effects that will be needed; they will be recorded by the Foley Mixer and the Foley Walkers; the **ADR** supervisor will cue all of the **Automated Dialogue Replacement** lines that need to be recorded during the ADR sessions, and the **Music Editor** will begin providing for the needs of the Composer and/or music supervisor. The **Dialogue editor(s)** will begin preparing the production audio for final mixing, and the ADR editors can commence editing in the ADR lines, once they have been recorded.

What happens after spotting ?

Typically, the next few weeks or months are occupied with sound editing of all types. The Director will be checking on the various aspects of the sound job as time progresses, to be sure that his vision is being realized. Usually, there is provision for one or more "effects reviews" where the effects are listen to and approved. The same goes for Foley, Dialogue, ADR, Sound Design and Music. When everything is completed and approved, the next step is Mixing (also called 'dubbing' or 're-recording').

What happens during the mix ?

During the mix, the edited production dialogue and ADR, sound effects, Foley and Musical elements that will comprise the soundtrack are assembled in their edited form, and balanced by a number of mixers to become the final soundtrack. In New York, single-mixer sessions are more commonplace than in Hollywood, where two-mixer and three-mixer teams are the norm.

The mixers traditionally divide the chores between themselves: the Lead Mixer usually handles dialogue and ADR, and may also handle music in a two-man team. In that case, the Effects mixer will handle sound effects and Foley. In three-man teams, they usually split Dialogue, Effects and Music; sometimes the music mixer handles Foley, sometimes the effects mixer covers it.

To keep the mix from becoming overwhelming, each mixer is actually creating a small set of individual sub-mixes, called STEMS. These mix stems (dialogue, effects, Foley, music, adds, extras, etc) are easier to manipulate and update during the mix.

When mixing is done, what then ?

After the mix is completed and approved, films generally require a last step called Printmastering, that combines the various stems into a final composite soundtrack. When this is completed, an optical or digital sound track can be created for a feature film release print.

It is also usual at this time to run an 'M & E' (which stands for Music and Effects) track. This is essentially the film's soundtrack with the English language dialogue removed. This allows foreign language versions of the project to be dubbed easily, while preserving the original music, sound effects and Foley. During the M & E, effects or Foley that are married to the production dialogue tracks are removed along with the dialogue. To "fully-fill" an M & E for a quality foreign release, those effects and Foley must be replaced.

Television movies usually do not require print masters, unless they have been created using SURROUND SOUND techniques. In most cases, the final stems are combined during a process called LAYBACK, at which time the soundtrack is united with a final edited master videotape for ultimate delivery.

What about optical soundtracks ?

Optical soundtracks (we mentioned them earlier). Almost all of the release formats, including the digital ones have provision for some kind of optical soundtrack, even if only as a backup. The optical soundtrack refers to the two-channel soundtrack that is carried on the optical track of the film release print.

How do I get an optical soundtrack ?

Once your surround sound format has been selected (see the paragraph below for more), you need to order an **optical soundtrack negative** for the film. In the case of LCRS mixes, a traditional two-channel; Printmaster track is created, and this is sent to an optical sound house for the creation of the optical negative. The optical sound house will record the soundtrack onto 35mm film using a special camera, and some will also develop their own soundtrack masters. Once the optical negative is shot and developed, it can be incorporated into your answer printing process, and a composite answer print containing your complete soundtrack can be printed or "shot" at your film lab. This usually happens during the first or second trial answer print phase.

What about: THX - Dolby - Ultra*Stereo - DTS - SDDS?

This is a BIG question. This one point alone causes much confusion amongst filmmakers. **Please take a moment and read this paragraph carefully.** If you need more information after that, please contact either Gnome Productions or Magnolia Studios and we will help you out.

First, about **THX**.

THX [tm] is not something that you DO to your soundtrack, it is just a set of sound reproduction or mixing conditions that optimize the sound of your film's soundtrack in exhibition. Simply put, the THX standards that many dubbing stages and movie theaters adhere to are a way of being certain that "what you **mix** is what you **get**", so to speak. You may choose to mix in a stage that is THX certified, and you may not. If you do, your soundtrack should sound reasonably the same in THX theaters all around the world. It is this **standardization** that THX brings to the filmmaking community.

You may want to visit the THX Web Site for further information. They can be found at <http://www.thx.com/thx/thxmain.html>.

To make sense out of the rest of the names, we need to know about **Film (and Television) Surround Sound**

Film sound tracks (and some television ones) go beyond just Left-Right Stereo; there is a Center Channel for the dialogue, and at least one "Surround Sound" channel. The Surround channel is used to project the sound out into the theater, to "surround" the audience. This is to enhance the illusion of being "in the picture". This four-channel format is called **LCRS** (for the **Left, Center, Right and Surround** channels that the soundtrack contains). Although the technical means behind this process is beyond the scope of this discussion, suffice it to say that it works well enough to have become a standard format for release prints for many years.

LCRS

You've probably already figured out that you cannot reproduce a four-channel soundtrack from a medium that only plays back two tracks. You are very right. In order to reproduce the **LCRS** soundtrack from a traditional film optical soundtrack (more on opticals later) you need a way to encode the channels....the **Matrix**

The Surround Sound Matrix Encoder (or, how to put FOUR into the space where TWO should go!)

The solution is to use an encoding device that can fold the four channels of audio down into the two channels available on the film's optical soundtrack. When the audio tracks have been processed this way, they are labeled **Lt/Rt** [Left Total/Right Total] in order to distinguish them from ordinary Left/Right Stereo soundtracks. The Surround Sound Matrix Encoder is a necessary piece of hardware that the audio post house must have available during your film's mix, in order to create the surround soundtrack.

The Licensing of Surround Sound formats

Now we're really getting into the heart of the matter. Dolby Labs, Ultra-Stereo Labs, DTS (Digital Theater Systems) and Sony [SDDS] all have technologies available for the encoding of film surround soundtracks into film release prints. Although these processes vary somewhat as to their

method, they essentially accomplish similar things. Additionally, some of these vendors offer Digital Encoding formats (Dolby Digital, DTS and SDDS currently, and Ultra-Stereo soon to come).

The Differences in Surround Sound formats

In the most basic form, Theatrical Surround Sound consists of LCRS: **Left, Center, Right**, and mono **Surround**. A soundtrack can be encoded into this format by using a Dolby or Ultra-Stereo encoding matrix during the film's Printmastering session. DTS also has a process called DTS Stereo that can create a typical LCRS film soundtrack (check with DTS directly for more on their specific processes...).

Surround Sound formats beyond L-C-R-S:

Some of the surround sound encoding processes can create different, more complex soundtrack formats; Dolby SR/D and DTS, for example, can create six-track soundtracks for release, and Sony's SDDS is an eight-track format. In the case of six tracks, you get **Left, Center, Right, Left Surround, Right Surround** and a **Sub-woofer** channel (for enhanced low-frequency response). The split surrounds (as they are called) make it possible to move sounds around in the surround speakers, or to use stereo background sounds for even more impressive film soundtracks (Jurassic Park comes to mind, here). And if you heard Jurassic Park in a good THX theater with a DTS Digital soundtrack, you know what the sub-woofers are there for! That T-Rex really gave the sub woofers a run for their money, as well as Jeff Goldblum...Six-track sound reproduction has been with us for a while, since 70mm film releases have had the ability to deliver a six-track soundtrack that was magnetically encoded on the release print. This, unfortunately, was very expensive to produce, and problematic to control quality.

Sony's SDDS (Sony Dynamic Digital Sound) uses an eight-track delivery configuration that adds two speakers in between the Left/Center and Center/Right positions in the front speaker wall. Known variously as **InterLeft, InterRight** or **LeftCenter** and **RightCenter**, these channels allow for additional separation of music, effects and dialogue in the front speaker wall, while preserving the split surround format.

The Differences in Digital Sound delivery methods

The three digital systems (Dolby, DTS and SDDS) use proprietary methods to deliver the digital audio to the theater; two of these methods

(Dolby, SDDS) encode the digital soundtrack onto the release print. DTS uses a different method, that of encoding a "timing stripe" onto the release print, and synchronizing a digital audio playback from an accompanying CD-ROM that carries the encoded soundtrack. In either case, the digital audio is reproduced in the theater with the same fidelity it was recorded at during the encoding process. This system neatly bypasses the traditional limitations of optical soundtracks: noise, bandwidth limitations, and headroom (transient peak) limits. Soundtracks sound cleaner, clearer and louder as a result. Please don't take this as a condemnation of optical soundtracks. A well-mixed movie can (and they still do) sound great with a well-produced optical soundtrack.

To summarize this difficult topic:

- **THX** specifies a set of standards that affect how sound is recorded and reproduced in a movie theater.

You get the benefits of the THX standard whenever you mix in a THX-certified mixing stage.

There is NO additional fee required.

You may display the THX logo in your film's credits if you sign a simple one-page form.

- **Dolby Surround** is a 4-channel optical surround format; this format is encoded in the optical soundtrack

You must license this format from Dolby Labs; There IS a license fee for this service

- **Ultra-Stereo** is a 4-channel optical surround format; this format is encoded in the optical soundtrack

You must license this format from Ultra-Stereo Labs; There IS a license fee for this service

- **DTS** is a 6-channel digitally-encoded surround format; this format is encoded on an external CD-ROM, but the timing and other information is encoded on the film release print;

You must license this format from Digital Theater Systems (DTS); There IS a license fee for this service

- **Dolby Digital** is a 6-channel digitally-encoded surround format; it is encoded on the film release print;

You must license this format from Dolby Labs; There IS a license fee for this service

- **SDDS** is an 8-channel digitally-encoded surround format; it is encoded on the film release print;

You must license this format from Sony Corporation - SDDS division; There IS a license fee for this service

I have got a video project - What's this DVD, AC-3?

relax - take a breath and we'll walk you through this...It's actually pretty simple;

Surround sound program on video materials are now released in a number of analog AND digital forms...

- Straight Left-Right Stereo program is still utilized a lot for Television, and Industrial formats...
- VHS Home video releases can be encoded in Dolby Surround (L,C,R,S), just like feature films;
- Laserdisc releases have also been using digitally encoded L,C,R,S surround formats, just like VHS
- NEW DIGITAL VIDEO RELEASE FORMATS have allowed for new DIGITAL SOUND FORMATS
 - **AC-3** - is a digitally-encoded surround sound format that is capable of reproducing six tracks of sound
 - Ac-3 actually refers to Dolby's **A**udio **C**ompression **3** format used to compress the data

- **DVD** releases are also utilizing AC-3 digital sound format as well as traditional Surround Sound

All of these formats can easily be handled or prepared by a knowledgeable sound house. Please contact us if you have specific questions that you would like answered...no obligation, of course...

My mix sounded great on the mixing stage - but my print isn't in sync!

Well, we didn't say this would be EASY, just that we could help take some of the mystery out of it for you...You should IMMEDIATELY contact your post sound house and tell them what you've experienced. The Sound Supervisor on your show should be willing to take some time and help you sort this out. In the meantime, here's a few things that you can check on:

Some likely possibilities:

(1) If the Final Mix Printmaster has been transferred or copied, be sure the copy was done correctly. We have had experiences where a perfectly fine Printmaster was thrown out of sync because a copy was made first, and the optical shot from the copy;

(2) If the soundtrack DRIFTS from being in sync to gradually being more and more OUT of sync during the reel, suspect this possibility: If the Printmaster is on Multitrack tape, the SMPTE code on the tape could cause the optical soundtrack to drift in speed; If you mixed to VIDEO TAPE, a slight difference between 29.97 frame code and 30.00 frame code could throw you out of sync by many frames over 1000 film feet. If the soundtrack was shot on Mag, a mistake in running the film chain at video speed could cause the Mag to be "offspeed", just like the Multitrack tape example above;

(3) If the Mag Printmaster was in sync when you reviewed the final mix, check to be sure the film lab didn't accidentally "misprint" the soundtrack by moving the optical negative a perf or two, or a frame or two when they married it to the picture. This can easily happen IF THE HEAD POP or TAIL POP is not EXACTLY CORRECT on your final Printmaster.

(4) If you printmastered in 2000-foot film reels, and FOR ANY REASON these reels were then separated and rejoined later, this poses a prime opportunity for sync to slip. If the beginning of a 2000 foot reel is in sync, and the

last 1000 feet is suddenly (and consistently) out of sync until the end of the reel, suspect this phenomenon immediately.

(5) If one or two shots suddenly are out of sync but were IN sync when you mixed, ask yourself this: *did you mix from an Avid or Lightworks (or other electronic edit system) output?* If so, it's possible the film negative was not cut to the exact same shot length as the electronic output; *Have you verified the length of all optical effects?* If you have inserted optical effects, they may not have been counted exactly right, and you may have gained (or lost) a perf or frame or two in the effect; either way, your soundtrack will lose sync right then and there, and STAY out of sync for the rest of the reel (unless another optical effect error magically puts it back in sync again!)

(6) Finally, when all else fails, it is remotely possible that the optical negative might be offspeed. A quick call to the optical sound house will help them verify this for you.

My foreign distributor says I need an "Emenee" to make a sale ?

Actually, it's an "M and E" or "M&E". This element comprises the "**MUSIC** and **EFFECTS**" elements of your original soundtrack, with ALL of the English language dialogue and Walla removed to allow for foreign language dubbing. In most contemporary post sound packages, an "M&E" is allowed for in the original bid. This process requires preparation during the original sound editing, as well as some additional Foley coverage that might NOT be needed for a straight domestic release. If you NEED an M&E, be sure that you tell your post sound house that UP FRONT. It WILL add some dollars to your post bid, but you WILL want it, if you are to have any possibility of a foreign release or sale at all. Preparing this element NOW will buy you plenty of "peace of mind" later on. The M&E can be on Mag, on DA-88, on DAT, or on almost any format that can be synchronized. It DOES NOT need to be converted to an Optical soundtrack form at this time...only later, when a new foreign Printmaster is created after the foreign language has been added to it.

Do I need to know about the academy rolloff ?

Well, although it is a holdover from film sound's infancy, we need to be aware of it, since it does have some relevance in certain circumstances. The academy

rolloff is a specific frequency response curve that is used in dubbing stages to simulate the effect that the old-time optical soundtrack would have on the frequency of the final soundtrack. With advances in technology in today's film industry, its use is diminishing, although it has been used on mono theatrical trailers to this day.

How do I get more info about Surround Sound Licensing?

It would be best to consult the various vendors themselves...

THX can be reached at <http://www.thx.com/thx/thxmain.html>, or in San Rafael, CA through **415-662-1800**

Dolby Labs can be reached at <http://www.dolby.com>, or locally in L.A. at **213-845-1880**

Digital Theater Systems can be reached at <http://www.dtstech.com>, or locally in L.A. at **818-706-3525**

Sony Corporation maintains a web page at <http://www.sony.com>

Ultra-Stereo Labs can be reached directly by telephone at: **818-609-7405**

Bruce Nazarian, [M.P.S. E](#)

(Motion Picture Sound Editors)

President
Gnome Digital Post
Magnolia Studios

email: gnome@cerfnet.com