

# 133rd SMPTE Technical Conference and Equipment Exhibit

Los Angeles Convention Center, Calif.  
October 26–29, 1991

The 133rd SMPTE Technical Conference and Equipment Exhibit is just around the corner. The event will take place Saturday, October 26, through Tuesday, October 29, 1991, at the Los Angeles Convention Center in California.

SMPTE Editorial Vice-President Frank J. Haney, Fox Television Stations, and SMPTE Conference Vice-President L. John Spring, Jr., Eastman Kodak Co., are providing the overall direction for the conference. Haney is in charge of the technical program; the equipment exhibit and general arrangements are being directed by Spring.

Haney has appointed Rick Thomas, Eastman Kodak Co., as Program Chairman. John Baptista, Consolidated Film Industries, and Alan S. Godber, Consultant, are the Program Vice-Chairmen. Frank Ricotta, Technicolor, Inc., is Topic Chairman – Motion Pictures; and Dick Stumpf, Universal City Studios, is Topic Chairman – Television. Baptista will serve as Chairman of both the Workshop and Seminar Program. Spring has selected Lou Wolf, Universal Studios, as Chairman of the General Arrangements Committee.

## Technical Program

Program Chairman Thomas and Vice-Chairmen Baptista and Godber have arranged an outstanding technical program based on the theme “Advanced Motion Imaging – Enhancing the Universal Language.” Nearly 125 papers will be read in 15 sessions during the four-day program. A complete list of the session and paper titles begins on page 710 of this issue.

## All-Day Tutorial Seminar

On Friday, October 25, an all-day tutorial seminar on computer motion

imaging will be held to complement the technical program. Titled “Advanced Motion Imaging,” it will be in a lecture format similar to the successful tutorials held before the 24th Annual Television Conference in Orlando and the 25th Annual Television Conference in Detroit. Bob and Gail Ringer, Ringer Video Services, are the organizers of the papers for this event.

Speakers at the tutorial seminar will include Robert Greenberg, R. Greenberg Associates; Glenn Kennel, Eastman Kodak Co.; Ed Jones, Indus-

trial Light and Magic; Chris Woods, a freelance special effects supervisor; Bill Feightner, Composite Video Systems; Paul Sidlow, Rez-n-8; Charles Poynton, Sun Microsystems; and Paul Carey, Component Video. Representatives from Quantel and Boss Films will also give presentations.

## Workshop Program

Three hands-on workshops will be held in conjunction with the conference. The sessions – Bar Code in the Workplace, Television Test Signals and Equipment, and Computer Gra-

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## Program Committee

Editorial Vice-President .....	Frank J. Haney
Program Chairman .....	Rick Thomas
Program Vice-Chairmen .....	John L. Baptista, Alan S. Godber
Topic Chairman (Film) .....	Frank Ricotta
Topic Chairman (Television) .....	Richard Stumpf

## Arrangements Committee

Conference Vice-President .....	L. John Spring, Jr.
General Arrangements Chairman .....	Lou Wolf
Assistant General Arrangements Chairman .....	Milt Shefter
Auditor .....	Gordon Cory
A/V and Projection Co-Chairmen .....	Bob Burton, Jess Daily
Video/Papers Facilities Chairman .....	John W. S. Brooks
Video/Papers Facilities Assistants .....	Bob Ringer, Gail Ringer, Capp Loughboro
Display Chairman .....	David Lansdown
Assistant Display Chairman .....	Ed Zammit
Banquet Chairman .....	Joel Gread
Entertainment Co-Chairmen .....	Lou Wolf, Milt Shefter
Registration Chairman .....	Ed Gordon
Assistant Registration Chairman .....	Margaret Byrne
Hospitality/Information Chairman .....	Gerald Finn
Hotel Arrangements Chairman .....	Roy Brubaker
Assistant Hotel Arrangements Chairman .....	Paul Van Camp
Opening Films and Tapes Chairman .....	Ron Little
Spouses Program Coordinator .....	Judy Chewey
Awards and Fellows Luncheon Co-Chairmen .....	Craig Curtis, John Mason
Membership Chairman .....	Chuck Phelan
Assistant Membership Chairman .....	John Celowanchik
PA/Recording Chairman .....	Tom Kuhn
Assistant PA/Recording Chairman .....	Bill Harrington
Transportation Chairman .....	Don McCroskey

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phics – will be offered on Saturday, October 26, and on Sunday, October 27. The two to three-hour seminars will concentrate on equipment that is already in use rather than the prototypes often discussed in the conference technical presentations. Each session will have ample time devoted to hands-on practice with state-of-the-art equipment.

### Student Fair

A Student Fair will be held on October 26 in Room 212B of the convention center from 2 to 5 p.m. The fair, which is under the leadership of Bob Ringer, will be geared toward high-school and junior-college students, offering them an opportunity to meet with representatives from colleges, universities, and trade schools that offer programs on the technical aspects of motion-pictures and television.

Admission will be free with a student I.D. card and will include entry to the exhibit area. The members of the Student Fair Committee are David J. Rabin, Consolidated Film Industries; Elizabeth Wolfe, Complete Post, Inc.; and Craig Curtis, Consultant.

### Conference Overview

Conference festivities will begin on Friday, October 25, with an **Exhibitors Reception** at the Los Angeles Convention Center from 6 to 8 p.m. Wine and cheese will be served, and guests will have the opportunity to preview the equipment on display. The gala is sponsored by the exhibitors, and all registrants are welcome to attend.

The conference will officially open on Saturday at 9:30 a.m. at the convention center, when SMPTE President Blaine Baker, MPL Film and Video, Inc., delivers the welcoming address. He will be followed by Engineering Vice-President Stanley N. Baron, NBC, who will present an engineering report. Immediately after Baron's talk, Roland Zavada, who is retired from Eastman Kodak Co., will give the keynote address, which will cover the Society's 75-year history from an engineer's viewpoint.

The **Honors and Awards Luncheon**, to be held on Saturday at 12:15 p.m., will feature the presentation of SMPTE awards that recognize outstanding achievements in motion pictures and television, and service to the Society. Actor Gregory Peck will be

### Registration Rates

	Before Sept. 20	On-Site Registration
Weekly: Member*	\$225	\$250
Nonmember*	300	325
Spouse	100	125
Life Fellow,*		
Life Member*	FREE	FREE
Student Member	FREE	FREE
Student Nonmember	25	35
Author (day of paper only, no lunch)	FREE	FREE
Press (no lunch)	FREE	FREE
Daily: Member	On-site only	75
Nonmember	On-site only	100
Honors and Awards Luncheon (if ordered separately)	30	35
Fellows Luncheon**	30	35
Banquet	60	70
Full Banquet Table	600	700
Friday Tutorial (includes box lunch)	100	100
Workshops (Specify 1, 2, or 3)	50 each	50 each
Equipment Exhibit only*** (unlimited days)	20	20

No refunds after October 11, 1991. All refunds subject to \$50.00 service charge. Tutorials, workshops, and special events not refundable.

\*Includes Honors and Awards Luncheon.

\*\*Fellows and Life Fellows only.

\*\*\*Admission to the equipment exhibit is included with conference, seminar, or workshop registration. Members of the BKSTS, FKTG, SPSE, SBE, ATS, ITVA, and AES may register at the member rate.

### Hotel Rates

	Standard	Medium	Deluxe	Towers
<b>The Westin Bonaventure (Headquarters)</b>				
Single	\$119	\$130	\$141	
Double	141	152	163	
<b>The Los Angeles Hilton</b>				
Single	113	133	153	\$173
Double	133	153	170	193
<b>The Holiday Inn</b>				
Single	82			
Double	92			
<b>The Figueroa</b>				
Single	68			
Double	74			

12.5% occupancy tax applied to above prices. Shuttle bus service will run only between the convention center and the Westin Bonaventure and the Los Angeles Hilton.

the featured speaker at the luncheon, which will be held in Petree Hall of the convention center. *The technical sessions will begin immediately after the luncheon; the equipment exhibit will open at 10 a.m.*

New Fellows will be honored at the **Fellows Luncheon**, which will be held 12 noon, October 27, at Petree Hall.

Burton "Bud" Stone, Deluxe Laboratories, Inc., will be the featured speaker. Attendance at this function is limited to Fellows and Life Fellows. The **Annual Cocktail Party, Banquet, and Dance** will be on Tuesday, October 29, at the Westin Bonaventure Hotel. The evening will feature fine food, dancing, and entertainment.

## Registration Packages

	Advance Member	On-Site Member	Advance Nonmember	On-Site Nonmember
<b>Plan A</b>	\$375	\$400	\$450	\$475
All sessions and exhibits Friday Tutorial Two workshops (of choice) Honors and Awards Luncheon				
<b>Plan B</b>	340	365	415	440
All sessions and exhibits Friday Tutorial One workshop (of choice) Honors and Awards Luncheon				
<b>Plan C</b>	300	325	375	400
All sessions and exhibits Friday Tutorial Honors and Awards Luncheon				

Cocktails will be served at 7 p.m., and the banquet will take place from 8 p.m. till midnight. Companies wishing to reserve tables should contact Mary Connolly at SMPTE Headquarters for information.

### Equipment Exhibit

The equipment exhibit will run concurrently with the technical program. Approximately 200 companies are expected to display the newest products and latest innovations in an area that measures roughly 150,000 sq. ft. A complete directory with booth locations and descriptions of the exhibiting companies and their products begins on page 714 of this *Journal*.

The hours for the exhibit will be 10 a.m. to 6 p.m. on Saturday, Sunday, and Monday, and 10 a.m. to 4 p.m. on Tuesday. This year the conference will feature a magazine-size trade show directory that will include black-and-white and color advertising. Owing to its successful introduction last year, the New Product Introduction Room will again be a part of the conference.

Registrants at the all-day tutorial seminar or any of the conference technical sessions, workshops, or social functions will be granted free admission to the exhibit. *Please note:* No one under the age of 12 will be permitted on the show floor. Children between the ages of 12 and 15 must wear badges and must be accompanied at all times by an adult.

### Registration Information

Advance and on-site registration will be available for the conference.

Members will receive registration information in the mail and are strongly encouraged to register in advance. By doing so, they will avoid long waiting lines at the conference.

To qualify for advance-registration rates, members must complete the forms and return payment to SMPTE Headquarters, 595 W. Hartsdale Ave., White Plains, NY 10607, no later than September 20, 1991. Nonmembers who wish to preregister may write to the address above or call (914) 761-1100 to receive advance-registration forms.

Three new registration packages will debut at this year's conference. Each package includes entrance to the all-day tutorial, all sessions, exhibits, and the Honors and Awards Luncheon. The packages differ in that some include admission to one workshop, two workshops, or a combination. See the Registration Packages table in this article to select the option that is right for you. This offer is open to both SMPTE members and nonmembers.

Daily on-site registration will be available for the conference beginning Friday, October 25, at the Los Angeles Convention Center, from 8 a.m. to 8 p.m. Thereafter, registration will take place from 8 a.m. to 6 p.m., Saturday through Tuesday, at the Convention Center.

### Hotel Reservations/Travel Information

Approximately 1500 rooms have been reserved at special rates for con-

ference attendees at the Westin Bonaventure Hotel, the Los Angeles Hilton, the Holiday Inn, and the Figueroa. To qualify for these special rates, registrants must submit the form and payment by September 20, to the Housing Bureau of Los Angeles, P.O. Box 71608, Los Angeles, CA 90071. Please do *not* mail this form to SMPTE Headquarters. As in the past, complimentary shuttle-bus service will be provided between the convention center and the Bonaventure and Hilton hotels.

Travel arrangements can be made now by calling Media Travel U.S.A. at (800) 283-8747 for discounted fares on air travel, Amtrak transportation, and car rentals. Be sure to mention that you are attending the SMPTE conference to get the best rates.

### New SMPTE Book to Preview

*Milestones in Motion-Picture Technology — The SMPTE 75th Anniversary Collection*, a commemorative book celebrating the Society's 75th anniversary, will be made available at the 133rd conference.

The book contains 20 papers that were among the first to describe specific technologies. The papers, which were originally printed in the *SMPE Transactions* or the *Journal*, trace major developments within the motion-picture and television industries from the Society's inception in 1916 to the present.

The book will be sold at the conference for \$20 a copy. To place an advance order, write to Julie Marion, SMPTE Books, 595 W. Hartsdale Ave., White Plains, NY 10607, or call her at (914) 761-1100.

### Committee Meetings

Most of the SMPTE engineering, administrative, and editorial committee meetings will be held at the Los Angeles Convention Center. Committee members will be notified in advance of the time and place of their meetings. A complete schedule will be available in the registration area of the convention center.

### Sponsored Activities

The Society wishes to thank the following sponsors for their generous support: Dolby Laboratories, Inc. (Board of Governors Reception); Eastman Kodak Co. (Coffee Club); and Sony Corp. (Spouses Breakfast).

— Carol King

**ADVANCE  
REGISTRATION  
DEADLINE**

**SEPTEMBER 20, 1991**

After Sept. 20, 1991,  
On-site Registration **ONLY**  
at higher rate.

**FORM MUST BE FILLED  
OUT COMPLETELY OR  
BADGE WILL NOT BE  
PROCESSED**



**ADVANCE REGISTRATION FORM**

**133rd SMPTE TECHNICAL CONFERENCE and EQUIPMENT EXHIBIT**  
October 26 thru 29, 1991 • Los Angeles Convention Center

Name \_\_\_\_\_ Tel: ( ) \_\_\_\_\_  
(please print) (first) (mi) (last)

Company \_\_\_\_\_ Fax: ( ) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ Zip \_\_\_\_\_

**Partner (Spouse - Fill in only if registering partner)**

Name \_\_\_\_\_  
(first) (mi) (last)

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ Zip \_\_\_\_\_

**O - PRIMARY BUSINESS:** (check one only)

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Network TV                               | <input type="checkbox"/> 11. Computer Graphics Facility   |
| <input type="checkbox"/> 2. Commercial TV Station                    | <input type="checkbox"/> 12. Film Studio                  |
| <input type="checkbox"/> 3. Commercial Group TV                      | <input type="checkbox"/> 13. Equipment Manufacturer       |
| <input type="checkbox"/> 4. Public TV Station                        | <input type="checkbox"/> 14. Equipment Dealer             |
| <input type="checkbox"/> 5. Foreign TV                               | <input type="checkbox"/> 15. Consultant                   |
| <input type="checkbox"/> 6. Military                                 | <input type="checkbox"/> 16. Trade Press/News Media       |
| <input type="checkbox"/> 7. Government Agency                        | <input type="checkbox"/> 17. Advertising Agency           |
| <input type="checkbox"/> 8. Educational Institution                  | <input type="checkbox"/> 18. Research Organization        |
| <input type="checkbox"/> 9. Audio Recording Studio                   | <input type="checkbox"/> 19. Other (please specify) _____ |
| <input type="checkbox"/> 10. Teleproduction/Post-Production Facility |   |

**Z - PRIMARY JOB DESCRIPTION:** (check one only)

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Owner/Proprietor       | <input type="checkbox"/> ENGINEERING                    |
| <input type="checkbox"/> CORPORATE MANAGEMENT      | <input type="checkbox"/> 10. Operations                 |
| <input type="checkbox"/> 2. CEO                    | <input type="checkbox"/> 11. Technical                  |
| <input type="checkbox"/> 3. President              | <input type="checkbox"/> 12. Production/Post Production |
| <input type="checkbox"/> 4. Sr. VP                 | <input type="checkbox"/> 13. General Management         |
| <input type="checkbox"/> 5. VP                     | <input type="checkbox"/> 14. Maintenance Engineer       |
| <input type="checkbox"/> ENGINEERING MANAGEMENT    | <input type="checkbox"/> 15. Research and Development   |
| <input type="checkbox"/> 6. VP Engineering         | <input type="checkbox"/> 16. Sales/Marketing            |
| <input type="checkbox"/> 7. Chief Engineer         | <input type="checkbox"/> 17. Educator                   |
| <input type="checkbox"/> 8. Engineering Director   | <input type="checkbox"/> 18. Student                    |
| <input type="checkbox"/> 9. Engineering Supervisor | <input type="checkbox"/> 19. Other _____                |

**A - - PRIMARY INTEREST:** (check one only)

- a. Motion Pictures     b. TV/Video     c. Audio  
 d. Computer Graphics     f. All Electronic Media
- I am a member of: (check all that apply)
- g. BKSTS     h. FKTG     i. SPSE     j. SBE  
 k. AES     l. RTS     m. ITVA     n. SMPTE
- Members of the above associations may register at the member rate.

**Refund Policy** All requests for refunds must be made in writing to SMPTE headquarters and received no later than October 11, 1991. If credentials have been received, these must accompany the request. A \$50.00 service charge will be deducted from all refunds. Tutorial, workshops and special event fees are absolutely non-refundable.

~ No one under the age of 12 will be admitted ~  
Persons between the ages of 12 & 15 must  
be badged and accompanied by an adult.

**The Society of Motion Picture and Television Engineers**

Full Conference Registrants  
Will Receive A Complimentary  
75th Anniversary Commemorative Pin

EVENTS - 109

**T - - CONFERENCE REGISTRATION FEES**

- Includes all sessions and exhibit hall admittance. (please indicate your choice)
1. Member .....\$225.00\*  
 2. Fellow .....\$225.00\*  
 3. Non-Member .....\$300.00\*  
 4. Student Non-Member .....\$25.00  
 5. Partner (formerly spouse reg.) .....\$100.00

NO CHARGE CONFERENCE REGISTRATION (please indicate your choice)

6. Life Member\*                       7. Life Fellow\*  
 8. Student Member

EXHIBIT ONLY REGISTRATION  
 10. Member/Non-Member \$20.00

NOTE: DAILY CONFERENCE  
REGISTRATION ON-SITE ONLY

**COMBINATION PLAN REGISTRATION SELECTION**  
(check the plan (s) of your choice)

- 20 Plan "A" Member .....\$375.00\*  
 21 Plan "A" Non-Member .....\$450.00\*  
 22 Plan "B" Member .....\$340.00\*  
 23 Plan "B" Non-Member .....\$415.00\*  
 24 Plan "C" Member .....\$300.00\*  
 25 Plan "C" Non-Member .....\$375.00\*

\* Denotes Honors and Awards Luncheon ticket included.  
NOTE: INDICATE BELOW THE WORKSHOP OF YOUR CHOICE

**- - SPECIAL EVENTS**

- H&A Luncheon (if purchased separately): ..... indicate qty. \_\_\_\_\_  A. \$30.00  
Fellows Luncheon (Fellows only): ..... indicate qty. \_\_\_\_\_  B. \$30.00  
Banquet (specify number of tickets): ..... indicate qty. \_\_\_\_\_  C. \$60.00  
Banquet Table (seats ten): ..... indicate qty. \_\_\_\_\_  D. \$600.00  
Tutorial Seminar .....  T. \$100.00

Select the workshop (s) of your choice

Saturday Workshop:  J     K     L    Sunday Workshop:  M     N     O

Method of payment (check one)     CHECK     AMEX     VISA     MC

Credit Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

TOTAL REMITTANCE \$ \_\_\_\_\_

NOTE: ALL REGISTRATIONS ON THIS FORM INCLUDE EXHIBIT HALL ADMITTANCE  
NOTE: WORKSHOP REGISTRATION ON-SITE ONLY (IF AVAILABLE).

SMPTE Registration 595 West Hartsdale Avenue, White Plains, New York, 10607  
Tel: (914) 761-1100 • Fax: (914) 761-3115.



Attendees at the 133rd SMPTE Technical Conference and Equipment Exhibit can visit such tourist attractions as the Los Angeles Music Center.

## Technical Program

### 133rd Technical Conference

#### Theme: Advanced Motion Imaging — Enhancing the Universal Language

The papers listed below are in the correct sessions but not in final order of presentation. The sessions and papers are firm as of July 9, 1991; however, changes are possible between the time of printing and the conference. For up-to-date information, call or write the SMPTE Program Coordinator, 595 W. Hartsdale Ave., White Plains, NY 10607. Telephone: (914) 761-1100; Fax: (914) 761-3115.

#### Saturday Morning

##### Opening Session

**Introduction:** Program Chairman Richard L. Thomas, Eastman Kodak Co.

**Welcoming Address:** SMPTE President Blaine Baker, MPL Film & Video, Inc.

**Engineering Report:** SMPTE Engineering Vice-President Stanley N. Baron, NBC

**Keynote Address:** Roland J. Zavada, Retired, Eastman Kodak Co.

#### Saturday Afternoon

##### Session A: Restoration and Preservation

**Film Asset Preservation,** Rami Mina, Eastman Kodak Co., Hollywood, Calif.

**Triacetate or Polyester Base: Operational Environmental and Disposal Considerations,** Harry Heuer, Eastman Kodak Co.; and Barry Stultz, FPC — A Kodak Company, Rochester, N.Y.

**Stability of Cellulose Ester Base Photographic Film,** P. Z. Adelstein, J. M. Reilly, D. W. Nishimura, and C. J. Erbland, Image Permanence Institute, Rochester Institute of Technology, Rochester, N.Y.

**A New Eastman Panchromatic Separation Film,** E. Kelly and S. Powell, Eastman Kodak Co., Rochester, N.Y.

**Modernization of NFB's Stockshot Library,** F. Gasoi, M. Cartier, Myriam Côte, and E. H. Zwaneveld, National Film Board of Canada, St. Laurent, Que., Canada

**The National Film Board International Consultation Center,** M. S. Azerad, R.

Forget, and E. H. Zwaneveld, National Film Board of Canada, St. Laurent, Que., Canada

**Technology Council: The First Two Years,** Jonathan Erland, Apogee Productions, Inc., Van Nuys, Calif.

##### Session B: Digital Recording

**Adaptive Digital Processing Improves the Image Quality of Small-Format Video Tape Recorders,** Stephen Kreinik, Nova Systems, Inc., Canton, Conn.

**Video Processing for a Composite Digital Video Tape Recorder,** Reginald Oldershaw, Ampex Corp., Redwood City, Calif.

**An Experimental Analog Baseband Hi-Vision VTR Using ME Tape,** K. Kamiyo, T. Matsui, K. Mutou, H. Shibaya, and Y. Oba, Japan Broadcasting Corp., Tokyo, Japan

**Development of High-Density Digital VTR Tape,** Tetsuji Nishida, Fuji Photo Film Co., Ltd., Odawara, Kanagawa, Japan

**Digital Video Recording Using VHS Transports and Tape,** James B. Van

Anda, *Digital Imaging, Inc., Apopka, Fla.*  
**The Second Generation Digital Television Recording Format, D-3: A Report by the Format Working Group Chairman,** Koichi Sadashige, *Consultant, Berlin, N.J.*  
**A Video Filing System Using a Magneto-Optical Disk,** Yoshihiro Sasaki, *NEC Corp., Tokyo, Japan*

**D-3 ½-in. Digital Format for Olympics in PAL,** Charles Spicer, *NBC, Inc., New York, N.Y.*

**The D-3 Composite Digital VTR Format,** Philip Livingston, *Panasonic Broadcast Systems Co., Secaucus, N.J.*

## Sunday Morning

### Session A: From Production to Exhibition

**Pros and Cons of 1.85, 2.35, and Super 35 Film Formats,** Robert Hummel, *Walt Disney Imagineering, Glendale, Calif.*

**Technirama Revisited,** Jonathan Erland, *Apogee Productions, Inc., Van Nuys, Calif.*; Joe Dunton, *Joe Dunton & Co., London, England*; and Ludwig Schneider, *Kem Corp., New York, N.Y.*

**Continuously Variable Remote Color Temperature Adjustments for Metal Halide Lamps in Cinematographic Applications,** A. Ketsdever, W. Omens, and E. P. Muntz, *USC, Entertainment Technology Program, Los Angeles, Calif.*

**This Sounds Like a Job for the McKibben Mechanism,** Martin S. Mueller and Barbara Pleason Mueller, *MSM Design, Inc., Hayden Lake, Idaho*

**Composite Construction for Lightweight Real Time Motion-Control Booms,** Michael Sorensen and Jonathan Erland, *Apogee Productions, Inc., Van Nuys, Calif.*

**Aaton Code or Bar Code? Both,** Jean Pierre Beauviala, *Aaton Camera, Grenoble Cedex, France*

**Contemporary Projection Room Practice,** Donald A. Helgeson, *Sidon Sound, Inc., Skokie, Ill.*

**Doubling Screen Image Resolution: UltraVision® Triforms: Part I,** Glenn M. Berggren, *Consultant, Claremont, Calif.*

**Applications of Machine Readable Key Numbers in Film Production,** Manfred Klemme, *Cinema Products Corp., Los Angeles, Calif.*

### Session B: Digital Processing and Compression

**Digital Noise Reduction,** David E. Acker, *FOR-A Corp. of America, Natick, Mass.*

**D-3 Format 8-14 Modulation — A More Compact and Robust Coding Method,** Author to be announced.

**Signal Distribution and Processing in a Serial Digital World,** David P. Bird, *BTS, Salt Lake City, Utah*

**Video Signal Processor for Home Use HD-DVTRs,** N. Doi, T. Setoyama, J. Nakase, and Y. Eto, *Hitachi, Ltd., Tokyo, Japan*

**Digital Image Compression Based on Visual Perception and Scene Properties,** William E. Glenn, *Florida Atlantic University, Boca Raton, Fla.*

**Objective Testing Techniques for Codec Systems,** Douglas C. Stevens, *Tektronix, Inc., Beaverton, Oreg.*

**Source-Adaptive Encoding Options for Current and Future Television Systems,** C. Bradley Hunt and LeRoy DeMarsh, *Eastman Kodak Co., Rochester, N.Y.*

**A Scalable, Spectrum Compatible Digital Architecture,** S. Wilson, T. Apelewicz, and G. Lomp, *Clearpoint Corp., Chicago, Ill.*

**Where is the Image?,** Peter D. Symes, *Grass Valley Group, Grass Valley, Calif.*

## Sunday Afternoon

### Session A: Special Applications and Sound

**Three-Dimensional Live-Action Imaging Achieved with a 35mm Single-Camera Autostereoscopic System,** Christopher A. Mayhew, *Vision III Imaging, Inc., Vienna, Va.*

**Computerized Film Animation System,** J. Dutrisac, V. Kassardjian, J. Dabby, M. Azerad, and Ed Zwaneveld, *National Film Board of Canada, St. Laurent, Que., Canada*

**Evolution and Application of the Laser-Matte Film Imaging System,** Craig Witty, *Panatrope, Inc., Highland Park, Ill.*

**Underwater Film vs. Video: A Comparative Study,** David Haylock, *Image Devices, Miami, Fla.*

**Karasync Multichannel Digital Audio for Film and Video,** John J. Karamon, *JK International, Stamford, Conn.*

**Some Technical Possibilities in Using Total Surround Sound Concept in the Motion-Picture Technology,** T. Stanojevic, M. Cipranic, and G. Sakota, *Sava Center, Belgrade, Yugoslavia*

**Mix-Computer Aided Sound Editing,** M. S. Azerad and E. Zwaneveld, *National Film Board of Canada*; and A. Belhumeur, *Mile-End Productions, St. Laurent, Que., Canada*

**A New 35mm Release Print Format with Analog and Digital Optical Soundtracks,** Ioan Allen and Charles Seagrave, *Dolby Laboratories, San Francisco, Calif.*

## Session B: Digital TV Systems

**Modular Solutions to Hybrid Digital Television,** Keith Y. Reynolds, *Grass Valley Group, Grass Valley, Calif.*

**Test and Measurement of Serial Digital Television Signals,** David K. Fibush and Bob Elkind, *Tektronix, Inc., Beaverton, Oreg.*

**Routing System Management and Planning in an Advanced Motion-Imaging Environment,** Chris J. Loberg, *Grass Valley Group, Inc., Nevada City, Calif.*

**The Analog Nature of Serial Digital Video Transmission,** Marc S. Walker, *BTS, Salt Lake City, Utah*

**Avoiding the Pitfalls in Serial Digital Signal Distribution,** Ron Ward, *Dynatech Utah Scientific, Salt Lake City, Utah*

**Totally Digitized Broadcasting System at NHK,** Takeo Tsutsui and Masatoshi Yorozu, *NHK, Tokyo, Japan*

**Pathological Check Codes for Serial Video/Audio Interface System,** Takeo Eguchi, *Sony Corp., Atsugi-shi, Kanagawa-ken, Japan*

**High-Density Digital Serial Routing,** Birney Dayton and Tom Cipollone, *NVision, Inc., Grass Valley, Calif.*

**A Graphical Environment for Studio and Plant Control,** Neill Allen, *NVision, Inc., Grass Valley, Calif.*

## Monday Morning

### Session A: New and Improved Film Systems

**An Analysis of the Eastman Color System,** D. Fenton, C. Hagmaier, J. Keech, S. Powell, and J. Sawyer, *Eastman Kodak Co., Rochester, N.Y.*

**Agfa XT 100: A New Color Negative Film Based on Advanced XT Crystal Technology,** Y. Gilliams, H. Stappaerts, R. Huybrechts, and R. Olbrechts, *Agfa-Gevaert N.V., Mortsel, Belgium*

**A New Eastman Color Intermediate Film,** D. Fenton, C. Hagmaier, J. Keech, Alan Masson, and J. Sawyer, *Eastman Kodak Co., Rochester, N.Y.*

**Progress on Fujicolor Negative Film F-Series,** Ken Hisao Kishimoto and Kozo Noguchi, *Fuji Photo Film Co., Ltd., Minami-Ashigara, Japan*

**Extensions of the Eastman EXR Family,** K. Ford, M. Handley, E. Kelly, M. Pavlik, S. Powell, N. Ravindran, and D. Wasserbauer, *Eastman Kodak Co., Rochester, N.Y.*

**Color Print Film and the Ecology Challenge: A New Agfa Color Print Film CP10,** M. Ailliet, K. Brems, R. Olbrechts, *Agfa-Gevaert N.V., Mortsel, Belgium*

**Cinema Digital Sound – Laboratory Implications**, Ronald E. Uhlig, *Eastman Kodak Co., Rochester, N.Y.*; and James R. George, *Consultant, Sepulveda, Calif.*

**Agfa Bar Code**, H. Stappaerts, L. Caluwaerts, and L. Struyce, *Agfa-Gevaert N.V., Mortsel, Belgium*

**Light Source Modifications for Subtractive Printers**, M. J. Bogdanowicz, C. P. Hagmaier, and M. L. Schmoeger, *Eastman Kodak Co., Rochester, N.Y.*

## Session B: Advanced Television

**Computer-Aided Simulation and Testing of Television Systems**, Carl Pantstios Markhauser, *University Simon Bolivar, Caracas, Venezuela*

**Spectrum-Efficient HDTV Broadcasting Using Spread-Spectrum Methods**, William F. Schreiber and Ashok Popat, *Massachusetts Institute of Technology, Cambridge, Mass.*

**Advanced Television Systems – The Situation in Germany and Central Europe**, U. H. Reimers, *Norddeutscher Rundfunk (NDR), Hamburg, Germany*

**Digital EDTV**, H. Y. Kim and S. V. Naipally, *Panasonic Advanced T.V.-Video Laboratories, Inc., Burlington, N.J.*

**A Decoder for Letter-Box-Type Wide-Aspect EDTV System**, H. Ito, N. Yamaguchi, T. Kurashita, and M. Ishizuka, *Mitsubishi Electric Co., Nagaokakyō City, Kyoto, Japan*

**ADTV's Robust Data Compression Approach: MPEG++**, G. A. Reitmeier and D. Raychaudhuri, *David Sarnoff Research Center, Princeton, N.J.*; R. S. Girons, *Thomson Consumer Electronics, Los Angeles, Calif.*; and C. Basile, *North American Philips, Briarcliff, N.Y.*

**The Creation of Subjective Source Materials for Testing Advanced Television Transmission Systems**, C. Eilers, *Zenith Electronics Corp., Glenview, Ill.*; L. DeMarsh, *Eastman Kodak Co., Rochester, N.Y.*; J. Gaspar, *Panasonic ATVL, Burlington, N.J.*; A. Godber, *Consultant, Milltown, N.J.*; B. Jones, *Consultant, Darien, Conn.*; P. Hearty, *Advanced Television Evaluation Laboratory, Department of Communications, Government of Canada, Ottawa, Canada*; E. Petajan, *AT&T Bell Labs, Murray Hill, N.J.*; and Craig Taner, *CableLabs, Boulder, Colo.*

**Digital Spectrum-Compatible HDTV Using Upconverted NTSC Video**, Paul Snopko, *Zenith Electronics Corp., Glenview, Ill.*; and Jong G. Kim, *GoldStar Laboratories, Chicago, Ill.*

**ACTV: The FCC System**, Michael Isnardi, *David Sarnoff Research Center, Princeton, N.J.*

## Monday Afternoon

### Session A: Laboratory Equipment and Applications

**Bar Coding – The Wave of the Future**, Robert W. Rylander, *Symbol Technologies Inc., Bohemia, N.Y.*

**KeyKode™ Application Software – The Next Step**, Ronald Uhlig, *Eastman Kodak Co., Rochester, N.Y.*

**Advances in the Application of Bar Coded Edge Numbers**, Mark D. Levine, *Hollywood Film Co., Los Angeles, Calif.*; and Dale K. Brubacher-Cressman, *Research In Motion Ltd., Waterloo, Ont., Canada*

**Using Computer Imaging to Create Motion-Picture Titles and Subtitles**, Irwin W. Young, *Du Art Film Laboratories, Inc., New York, N.Y.*

**Computerized Chemical Control Links Process Control with Densitometry**, Nigel Varian, *FilmLab Systems International, High Wycombe, England*

**65/70mm Wet/Dry Continuous Contact Printer**, John M. Ehrenberg, *BHP, Inc., Chicago, Ill.*

**The COSHARP Printer**, John Mosely, *The Technology Council, Beverly Hills, Calif.*

### Session B: HDTV Production and Graphics

**An Analysis of HDTV Scanning Parameter Families**, Gary Demos, *DemograFX, Culver City, Calif.*

**Production and Transmission Facilities for Daily HDTV Satellite Broadcast**, M. Honda, A. Yamakita, and H. Fujio, *NHK, Tokyo, Japan*

**An HDTV 2/3-in. CCD Handheld Camera**, K. Mitani, Y. Fujita, and F. Okano, *NHK*; and Y. Toyoda, H. Asada, and T. Nobusada, *Matsushita Electronics Corp., Tokyo, Japan*

**Scope HDTV: A Widening Perspective for High-Definition in Special Venue Applications**, J. Erland, *Apogee Productions Inc., Van Nuys, Calif.*; J. Galt and J. Pearman, *Sony High Definition Facilities, Inc., Los Angeles, Calif.*; and T. Miyagashima and M. Shore, *Panavision, Tarzana, Calif.*

**High Definition Slow Motion Instant Replay Using Disk**, Scott Young, *Broadcast Television Systems, Salt Lake City, Utah*

**Picture Conversion for HD Graphics**, Bob Pank, *Quantel Ltd., Newbury, Berkshire, England*

**HDTV: Towards a Global Standard?**, Philippe-Oliver Rousseau, *Eutelsat, Paris, France*

**Enhancing the Universal Language: From Tele-Vision to Dialup Tele-See-'n-**

**Talk**, C. Robert Paulson, *AVP Communication, Westborough, Mass.*

### Session C: Television Audio

**Cost-Effective Digital Audio Distribution**, Merv Graham and Bill Rorden, *Graham-Patten Systems, Inc., Grass Valley, Calif.*

**Death, Taxes, Audio Sample Rate Conversion, and Other Things that Go Bump in the Night**, Charles Meyer and Don Lydon, *NVision, Inc., Grass Valley, Calif.*

**Digital Audio via Telecommunications Fiber: The Virtual Audio Studio**, Charles Sullivan, *NVision, Inc., Grass Valley, Calif.*

**Digital Audio Synchronization in a Mixed Media Plant**, David E. Zimmerman, *NVision, Inc., Grass Valley, Calif.*

**Handling Audio in Video Post-Production Today**, Mike Patten, *Graham-Patten Systems, Inc., Grass Valley, Calif.*

**Audio Editing of 1/2-in. Digital VTR (D-3)**, K. Takeuchi, S. Tsuji, and N. Kihara, *Matsushita Electric Industrial Co., Ltd., Tokyo, Japan*; and T. Nakayama, *NHK, Kadoma, Osaka, Japan*

**Microphony for Stereo and Surround Sound Encoding**, Adrian Weidmann, *AMS Industries, Inc., Bethel, Conn.*

**Advanced HDTV Audio Proposal**, Thomas B. Keller, *Cablelabs, Springfield, Va.*

**A Post-Production Console for the Next Decade**, Mark Yonge, *Solid State Logic, New York, N.Y.*

## Tuesday Morning

### Session A: Film-Electronic Interface I

**Interfacing HDTV and Motion-Picture Production**, Corey Carbonara, *Baylor University, Waco, Tex.*

**HDTV and Film – Digitization and Extended Dynamic Range**, Laurence J. Thorpe, *Sony Advanced Systems, Montvale, N.J.*

**Improvements in the Transfer of SMPTE-240M High-Definition Video to 35mm Film Through Motion-Compensated Interpolation**, J. W. Richards, M. W. A. David, and C. H. Gillard, *Sony Broadcast & Communications Ltd., Basingstoke, Hampshire, England*

**Digital Film: Hiding the Raster**, Thor Olson, *Management Graphics, Inc., Minneapolis, Minn.*

**Television Graphics for Film – Now Reality**, Peter Owen, *Quantel Ltd., Newbury, Berkshire, England*

**Optical Scanning System for a CCD Telecine for HDTV**, Andrew F. Kurtz and

David Kessler, *Eastman Kodak Co., Rochester, N.Y.*

**Design Issues for High-Quality Film Scanning and Recording**, G. Kennel, R. Ference, L. Moore, D. Snider, and M. Inchalik, *Eastman Kodak Co., Rochester, N.Y.*

**The Design of a Digital Imaging Workstation for the High-Resolution Electronic Intermediate System**, L. Arnold, J. Findcis, G. Griffiths, S. Hekmatpour, and C. Van Wagner, *Eastman Kodak Co., Rochester, N.Y.*

**The Technical and Practical Applications of Bar Code in Film Post Production**, Uwe Frohlich, *G. T. C. Film and Fernsehstudioteknik GmbH, Grosshansdorf, Germany*

## Session B: TV Plant and Transmission

**Advanced Technologies Bring Improved Performance To Microwave ENG Transmitters and Receivers**, Dr. John B. Payne III, *Nucomm, Inc., Hackettstown, N.J.*

**PBS and a Satellite System for the 21st Century**, C. V. Girod, *PBS, Alexandria, Va.*

**Reproduced Color Errors Due to Bandwidth Limitation of the Color-Difference Signals**, M. Kanazawa, J. Kumada, Y. Kanatsugu, and K. Shibuya, *NHK, Tokyo, Japan*

**Total Station Automated Program Record/Replay System**, Raymond K. Baldock, *Odetics Broadcast*; and Douglas A. Hurrell, *Alamar Electronics, Wayne, N.J.*

**Advanced Routing System Control in Complex Environments**, Kathleen Da-

vis, **Summer Olympics, Barcelona 1991: Decisions, Decisions**, Charles E. Spicer, *NBC, Inc., New York, N.Y.*

**Pioneers of Television – Philo Taylor Farnsworth**, Albert Abramson, *Retired, Laguna Hills, Calif.*

## Tuesday Afternoon

### Session A: Film-Electronic Interface II

**Cine-Text™ – Use of Audio Pattern Recognition Technology to Track and Electronically Subtitle Films**, Morris Jaslowitz, *National Film Board of Canada, St. Laurent, Que., Canada*

**Motion-Picture Digital Post-Production System**, Sean Adkins and John Keightley, *Phalo Systems, Inc., Burnaby, British Columbia, Canada*

**Practical Application of Electronic Processing to Film SFX**, Mike Boudry, *The Computer Film Company Ltd., London, England*

**Economic Electronic Post-Production Off-Line Editing for Film**, Neil Foster, *JVC Professional Products – Europe, Wembley, Middlesex, England*

**Digital Film Content Sampling: Using the Eyes and Ears of the Microcomputer to Manage and Inspect Image Shots and Sound Sequence**, Ed. H. Zwaneveld and Morris Jaslowitz, *National Film Board of Canada, Saint Laurent, Que., Canada*

**The NFB's Experience with Nonlinear Digital Editing**, F. Gasoi, T. Viljoen, and E. H. Zwaneveld, *National Film Board of Canada, St. Laurent, Que., Canada*

**KS-1 – An Integrated Time Code Generator and Data Management System for**

**Telecine Scanners**, R. T. Danylak, *Discovery Productions, Toronto, Ont., Canada*; and T. Banting and S. Mercer, *Telcom Research, Burlington, Canada*

## Session B: Video Graphics and Effects

**Recording In 3-D – New Applications for Kaleidoscope and Kadenza Systems**, Robert Yourd, *Grass Valley Group, Grass Valley, Calif.*

**A Teleological Modeling Tool Kit**, Jeff Goldsmith and Al Barr, *California Institute of Technology, Pasadena, Calif.*

**The Application of Video Recording Technology to Scientific Visualization in a National Research and Development Laboratory**, David H. Dirks, *Lawrence Livermore National Laboratory, Livermore, Calif.*

**DVEator – Bridging the Gap Between Real-Time Effects and 3-D Animations**, Blake Brown, *Pinnacle Systems, Mountain View, Calif.*

**Software Bridges – Enhancing the Universal Language**, Jason Danielson and Ray Pon, *Digital F/X, Inc., Mountain View, Calif.*

**Mix/Effects Innovation – Layering is the Key**, Michael M. Guess, *Grass Valley Group, Inc., Grass Valley, Calif.*

**Video Composite Technology Used in “A Galactic Odyssey”**, A. Shigenaga, N. Yamamoto, and S. Kosukegawa, *NHK, Tokyo, Japan*

**ID Code Insertion System for TV Signal**, A. Hori, Y. Araki, and T. Kurosaki, *Nippon Television Network, Corp., Tokyo, Japan*



The Los Angeles skyline.