

The 130th SMPTE Technical Conference and Equipment Exhibit



Jacob K. Javits Convention Center, New York City October 15-19, 1988

The groundwork has been laid and everything is in readiness for the commencement of the 130th SMPTE Technical Conference and Equipment Exhibit, to be held Saturday, October 15 through Wednesday, October 19, 1988, at the Jacob K. Javits Convention Center in New York City. "Innovations in Imaging and Sound" is the theme.

SMPTE Editorial Vice-President Howard T. La Zare, Deluxe Laboratories, Inc., and SMPTE Conference Vice-President Blaine Baker, MPL Film and Video, Inc., are providing the overall supervision for the conference. Appointed by La Zare as program chairman is Edward J. Burns, Eastman Kodak Co.; selected as program vice-chairman is Frank J. Haney, Capital Cities/ABC, Inc. Charles E. Spicer, NBC, Inc., has been named by Baker as the general arrangements chairman.

Technical Program

Due to the many excellent papers received, the technical program committee expects this to be a most in-

sightful and informative series of sessions. Topics chairmen John L. Baptista, Consolidated Film Industries, Inc., and Alan S. Godber, NBC, Inc., have assisted Burns and Haney in compiling the 170 technical papers that will be presented.

There will be 23 sessions over the course of the five days. Contributing to the program are representatives from all over the world — Canada, Japan, England, France, W. Germany, Belgium, The Netherlands, and the Soviet Union. A listing of the papers program appears at the end of this article.

Conference Overview

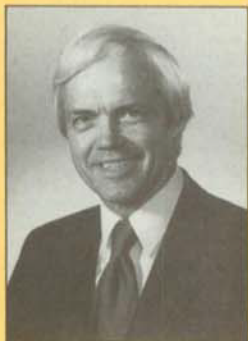
Preceding the conference, the evening of Friday, October 14, there will be a welcoming reception for all registrants in the Broadway Ballroom of the Marriott Marquis Hotel. The conference will officially be under way the following morning, when SMPTE President M. Carlos Kennedy of Ampex Corp. delivers his welcoming address. Kennedy will be followed by SMPTE Engineering Vice-President

Stan Baron, NBC, Inc., who will present his Engineering Report. Immediately after, the keynote address will be made by Emmy award recipient William G. Connolly of Sony Corp.

Saturday afternoon, the Honors and Awards Reception and Luncheon will be held. Soon after, the technical sessions will start, and the opening of the equipment exhibit will take place with an official ribbon-cutting ceremony.

Registration

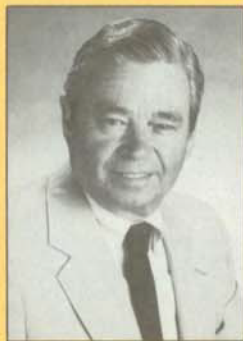
Daily on-site registration will be available for the conference and equipment exhibit beginning Friday, October 14, from 9:00 a.m. to 5:00 p.m., in the Soho Room of the Marriott Marquis; thereafter, registration will take place at the convention center during the following hours: Saturday, 8:00 a.m. to 6:00 p.m.; Sunday, 8:00 a.m. to 6:00 p.m.; Monday, 8:00 a.m. to 6:00 p.m.; Tuesday, 8:00 a.m. to 5:00 p.m.; and Wednesday, 8:00 a.m. to 1:00 p.m.



Conference
Vice-President
Blaine Baker



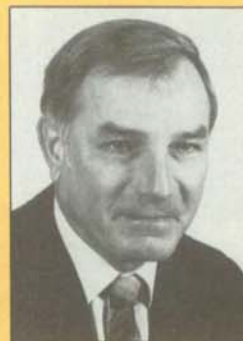
Editorial
Vice-President
Howard T. La Zare



General Arrangements
Chairman
Charles E. Spicer



Program
Chairman
Edward J. Burns



Program
Vice-Chairman
Frank J. Haney

Honors and Awards Luncheon

Annual tribute is paid to those who have demonstrated outstanding technical achievements and distinguished service to the SMPTE at the Honors and Awards Luncheon. The Society is pleased to have as featured speaker Sir James Redmond, formerly of the British Broadcasting Corp.

The luncheon will take place in the Special Events Hall (Hall 1D) of the convention center on Saturday, October 15, from 12:15 p.m. to 2:00 p.m. A reception will be held before the luncheon, beginning at 11:30 a.m.

Fellows Luncheon

This event, which is open only to Fellows and Life Fellows of the Society, will be held Sunday, October 16, at 12:00 noon in the Astor Ballroom of the Marriott Marquis. The guest speaker will be former SMPTE President Leonard F. Coleman of Eastman Kodak Co.

Fellows will be honored, and each will be presented a plaque by SMPTE President Kennedy. A Fellow of the Society is one who is no less than 30 years old and has, by his proficiency and contributions, attained an outstanding rank among engineers or executives in the motion-picture, television, or related industries.

Sponsored Activities

The Society wishes to thank the following companies, who have notified us by July 28, 1988, for their generous sponsorship of various conference activities: Film Processing Corp., Riviera Broadcast Leasing, and Filmline Technologies (Banquet Entertainment); Ampex Corp. (Banquet Reception); National Broadcasting Co. (Banquet Wines); Will Rogers Insti-

tute (Blood Pressure Clinic); Dolby Laboratories, Inc. (Board of Governors Reception); Eastman Kodak Co. (Coffee Club); Magna-Tech Electronic Co., Inc. (Fellows Reception); Ikegami Electronics (USA), Inc. (Honors & Awards Reception); and Sony Corp. (Spouses' Breakfasts).

The Coffee Club at the Javits Convention Center will be open Saturday through Wednesday. Coffee and Danish will be available.

Spouses Program

Program Chairwoman Patsy Spicer has arranged an entertaining week of activities for spouses attending the 130th Conference. Scheduled

excursions include some of New York City's finest cultural offerings. Beginning with a welcome tea on Friday, October 14, the schedule is as follows — Saturday: breakfast at the Marriott, followed by the Honors and Awards Reception and Luncheon; Sunday: brunch aboard the *Spirit*; Monday: breakfast at the Marriott, Museum of the Moving Image tour, Noguchi Garden and Museum tour, and luncheon at the Water's Edge; Tuesday: breakfast at the Marriott, a tour of the Degas Exhibit at the Metropolitan Museum of Art, and luncheon at the Sign of the Dove; Wednesday: breakfast at the Marriott, tours of Gracie Mansion and the

Program Committee

Editorial Vice-President	Howard T. La Zare
Program Chairman	Edward J. Burns
Program Vice-Chairman	Frank J. Haney
Topic Chairman (film and audio)	John L. Baptista
Topic Chairman (television)	Alan S. Godber

Arrangements Committee

Conference Vice-President	Blaine Baker
General Arrangements Chairman	Charles E. Spicer
Hotel/Associate General Arrangements Chairman	Ed Hobson
Membership Chairman	Michael Johnson
Registration Chairman	Alan Rosenfeld
Facilities Chairman	Roger J. Salles
Opening Films and Tapes Chairman	Robert Zagoren
PA and Recording Chairman	Herb Ohlandt
Audiovisual and Projection Chairman	Timothy J. Spitzer
Spouses Program Chairman	Patricia G. Spicer
Luncheon Chairman	James D. Hannafin
Banquet and Entertainment Chairman	Linda Young
Display Chairman	David Elliott
Hospitality Chairman	David H. Bingham
Transportation Chairman	Neal Pilzer
Assistant Auditor	Charles Jablonski

**130th ANNUAL SMPTE TECHNICAL CONFERENCE AND EQUIPMENT EXHIBIT
REGISTRATION
JACOB K. JAVITS CONVENTION CENTER, NEW YORK CITY
October 15-19, 1988**

ADVANCE REGISTRATION DEADLINE—SEPTEMBER 9, 1988

PLEASE TYPE OR PRINT CLEARLY

LAST NAME	FIRST NAME	MIDDLE INITIAL
COMPANY NAME		
COMPANY ADDRESS		
CITY	STATE	ZIP OR CODE
COMPANY TELEPHONE (include area code)		MEMBERSHIP GRADE, IF MEMBER

COMPLETE NEXT TWO LINES ONLY IF SPOUSE IS REGISTERING FOR SPOUSES PROGRAM:

SPOUSE'S LAST NAME	SPOUSE'S FIRST NAME	MIDDLE INITIAL
SPOUSE'S COMPLETE HOME ADDRESS		

REGISTRATION FEES

Check ALL that apply:

Weekly Registration

- | | |
|---|----------|
| <input type="checkbox"/> 1. Member* | \$185.00 |
| <input type="checkbox"/> 2. Nonmember* | 225.00 |
| <input type="checkbox"/> 3. Student Nonmember | 10.00 |
| <input type="checkbox"/> 4. Life Member* | FREE |
| <input type="checkbox"/> 5. Life Fellow* | FREE |
| <input type="checkbox"/> 6. Student Member | FREE |
| <input type="checkbox"/> 7. Press | FREE |
| <input type="checkbox"/> 8. Author | FREE |
| <input type="checkbox"/> Spouse*
(day of paper only) | 85.00 |

Food Functions

- | | |
|--|--------|
| <input type="checkbox"/> H&A Luncheon
(if separate: qty.____) | 30.00 |
| <input type="checkbox"/> Fellows Luncheon
(Fellows only) | 35.00 |
| <input type="checkbox"/> Banquet (qty.____) | 60.00 |
| <input type="checkbox"/> Full Banquet Table | 600.00 |

TOTAL FEES \$_____

INFORMATION:

- 1) *Includes Honors & Awards Luncheon.
- 2) Fellows Luncheon NOT included with ANY Registration.
- 3) Weekly nonmember registrants may present this receipt at SMPTE Membership Desk for \$20 credit towards Membership.
- 4) Members of BKSTS, FKTG, SPSE, SBE and AES may register at the Member rate.
- 5) No one under 12 admitted to show floor; ages 12-15 must be badged/accompanied by a responsible adult.
- 6) All fees slightly higher on-site. See brochure for on-site fees.

Make check payable in US Dollars. Send check and both copies of this form to:

SMPTE Registration
595 W. Hartsdale Avenue
White Plains, NY 10607
914-761-1100
Or Fax with credit card number: 914-761-3115

Method of Payment (circle one and enter ALL information)

- A) Enclosed is my check for \$_____
- B) Amex Mastercard Visa

Card # _____

Exp. Date _____ Signature _____

Cardholder Name _____

I am a Member of (check all that apply):

BKSTS FKTG SPSE SBE AES

CANCELLATION POLICY: All refunds subject to a \$25.00 cancellation fee. All requests for refunds must be in writing and postmarked no later than September 23, 1988. Approved refunds will be issued following the conference. For those unable to attend entire conference, daily registration is available at the conference. There is a \$25.00 fee for lost or forgotten badges.

Malcolm Forbes collection, and luncheon at America.

Spouses who have registered in advance will have their registration materials mailed to them. On-site registration will begin at 9 a.m. in the Soho Room of the Marriott Marquis on Friday, October 14. Spouses may also register on Saturday morning in the Spouses' Hospitality area, located in the Skylobby on the 16th floor of the hotel.

Hotel Reservations

Approximately 1500 rooms have been made available at special rates to conference attendees at the Marriott Marquis, the New York Hilton, the Sheraton Centre, and the Milford Plaza. Reservations at any of these hotels must be made using the hotel reservation form which was sent by Headquarters to all members. To qualify for the special rates, registrants must have submitted the form and payment by September 9, 1988, directly to the hotel selected, which will confirm all reservations. As in the past, shuttle bus service will be provided between the convention center and the Marriott, Hilton, and Sheraton hotels.

SMPTE Banquet

The annual SMPTE Banquet will be held on Tuesday evening, October 18, in the Broadway Ballroom of the Marriott Marquis Hotel. Banquet and Entertainment Chairwoman Linda Young, Du Art Film Laboratories, Inc., has seen to it that the affair will be most engaging and entertaining. Companies wishing to reserve tables at the Banquet should contact Mary Connolly at SMPTE Headquarters for information.

Committee Meetings

The majority of SMPTE engineering, administrative, and editorial committee meetings will be held at the Javits Convention Center. Committee members will be notified in advance as to the time and place of their meetings, and a complete schedule will be available in the registration area of the Convention Center.

Equipment Exhibit

The equipment exhibit will take place in Halls 1B and 1C of the Javits Convention Center from Saturday, October 15 through Tuesday, October 18. The daily hours of the exhibit

Registration Rates

	Before Sept. 9	On-Site Registration
Weekly: Member*	\$185.00	225.00
Non-Member*	225.00	265.00
Spouse*	85.00	95.00
Life, Fellow, Life Member*	FREE	FREE
Student Member	FREE	FREE
Student Non-Member	10.00	15.00
Honors and Awards Luncheon (if ordered separately)	30.00	35.00
Fellows Luncheon**	35.00	40.00
Banquet	60.00	60.00

No refunds after September 23, 1988.

*Includes Honors and Awards Luncheon.

**Fellows and Life Fellows only.

Members of the BKSTS, FKTG, SPSE, SBE, and AES may register at the member rate.

Daily registration will be available at the Jacob K. Javits Convention Center during registration hours.

Hotel Rates

The Marriott Marquis (Headquarters)			
Single	Double/Twin	Suite	
\$155	\$170	\$425-\$1500	
The New York Hilton			
Single	Double/Twin	Suite	Exec. Tower Sgl/DbI
\$135-150-165	\$160-175-200	\$400-525	\$210/235
The Sheraton Centre			
Single	Double/Twin	Suite	
\$130-144-160-170	\$160-170-185-200	\$370 and up	
The Milford Plaza			
Single	Double/Twin		
\$80	\$90		

Room rates subject to 8.25% New York City tax, 5% hotel tax, and \$2.00 per room per night occupancy tax.

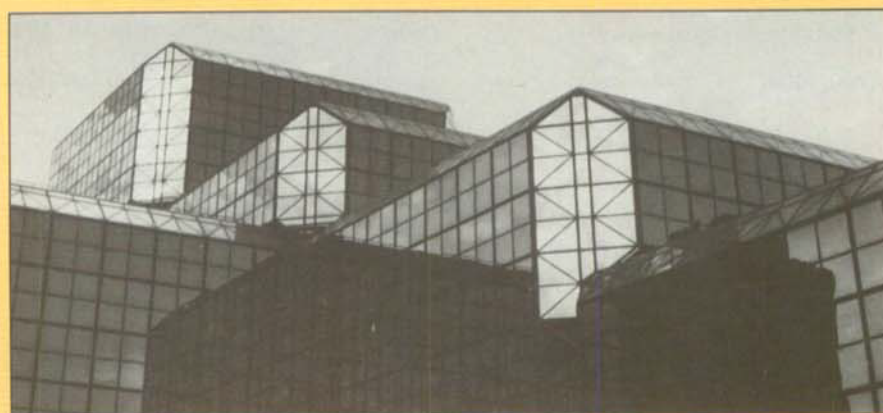
Conference rates guaranteed only until September 9, 1988.

Shuttle bus service will be provided between the Convention Center and the Marriott, Hilton, and Sheraton hotels at no additional cost.

are as follows: Saturday, 2:30 p.m. to 6:00 p.m.; Sunday, 10:00 a.m. to 6:00 p.m.; Monday, 10:00 a.m. to 6:00 p.m.; and Tuesday, 9:00 a.m. to 4:00 p.m.

A total of 192 companies, occupying 72,950 sq. ft of floor space, are

scheduled to participate in this year's exciting equipment exhibit. As of this writing, exhibit space is sold out, with a number of companies on a waiting list. A complete directory, with descriptions of the exhibiting companies, begins on p. 736 of this issue.



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Program Outline

130th Technical Conference

Innovations in Imaging and Sound

The papers listed below are in the correct sessions (except as otherwise noted) but not in the final order of presentation. The sessions and papers are firm as of July 25, 1988. However, changes are possible between the time of printing and the conference. For up-to-the minute program information, call or write the SMPTE Program Coordinator, 595 W. Hartsdale Ave., White Plains, NY 10607. Phone: (914) 761-1100; Fax: (914) 761-3115; Telex: 4995348.

Saturday Morning Opening Session

Introduction by Program Chairman, Edward J. Burns, *Eastman Kodak Co.*

Welcoming Address: SMPTE President M. Carlos Kennedy, *Ampex Corp.*

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

Keynote Address: William Connolly, *Sony Corp.*

Saturday Afternoon

Session A: Archival and Lighting

Todd-AO: A History, John Belton, *Rutgers University, New Brunswick, NJ.*

Technological History of Film and Video at the American Museum of the Moving Image, Richard Koszarski, *American Museum of the Moving Image, Astoria, NY.*

The Archival Quality of Film on Cellulose-triacetate, Karel Brems, *Agfa-Gevaert N.V., Mortsel, Belgium.*

A Proposed Alternating Current Power Distribution System for Motion Picture and Television Location Lighting, Richard D. Thompson and Douglas G. Fessler, *Thompson Associates & Professional Design Products, Van Nuys, CA.*

The Application of Electronic Ballasting to Medium Arc Metal Halide Discharge Lamps, F. Stephen Henry, *OSRAM Corp., Newburgh, NY.*

Flicker Free HMI Lighting System for High-Speed Photography, Paul Kiankhooy-fard, *The Lightmaker Co., Valencia, CA.*

The Care and Handling of Hazardous Nitrate Film at UCLA's Unique Projection Facilities, Jess Daily, *UCLA Dept. of Film and Television, Los Angeles, CA.*

Maximizing the Life of Your Videotapes, Jim Wheeler, *Ampex Corp., Redwood City, CA.*

Session B: Digital Distribution/ Transmission of TV Signals

Overview: Concepts of Digital Distribution Specifically Emphasizing Bit Rate Reduction Techniques, Hugo Gaggioni, *Bellcore, Morristown, NJ.*

DS-3 Video Compression Codec Technology Utilizing Higher Order Differential Pulse Code Modulation, Thomas R. Volk, *NEC America, Inc., Herndon, VA.*

DCT-Based Television Codec for DS-3 Digital Transmission, Silvio Cucchi and Francesco Molo, *Telettra USA, New York, NY.*

A Single Chip 45-Megabit Video Codec, James A. Michener, *Grass Valley Group, Grass Valley, CA.*

A Modular Video Coding Architecture for Present and Advanced TV Systems, Shaker Sabri, Denis Lemay and Eric Dubois, *Bell-Northern Research, Verdun, Que., Canada.*

Objective Measurement Methods of Motion Artifacts for 45 Mbit, NTSC, DPCM, Bit-Reduction Video Codecs, Howard Meiseles, *Capital Cities/ABC Inc., New York, NY.*

Adaptive Prediction for High-Quality Television Transmission Coding Based on the LMS Algorithm, Michael J. Knee, *British Broadcasting Corp., Surrey, England.*

Session C: TV Post Production I

The 4:2:2 Standard in Electronic Post Production, Marcos Obadia, *Limellite Video, Inc., Miami, FL.*

Conversion Between Composite and Component Digital Signals, T. Fujita, J. Takayama and P. Dare, *Sony Corp., Teaneck, NJ.*

Post Production Switcher Solutions, David G. S. Wood, *Grass Valley Group, Grass Valley, CA.*

Mechanics and Head for Composite Digital VCR, N. Kaku, K. Ogiro, S. Ozaki, S. Yokoo, T. Ozawa, Y. Niguchi, H. Ono, and H. Yokota, *Hitachi, Ltd., Yokohama, Japan.*

Multi-Generation Performance of a Digital Composite VTR, Fraser Morrison, *Ampex Corp., Redwood City, CA.*

The Recordable Laser Videodisc . . . A New Generation, John F. N. Browne, *Optical Disc Corp., Cerritos, CA.*

Post Production Facilities in the Digital Domain, Peter D. Symes, *Grass Valley Group, Grass Valley, CA.*

Integrating D-2 Into the Post Production

Environment, Michael Fayette, *Post Effects, Chicago, IL.*

Sunday Morning

Session A: Film Production Technology

The Arriflex Adjustable Filter, Stanislaw Loth and Howard P. Jones, *Arriflex Corp., Blauvelt, NY.*

The Arriflex Contrast Meter: A New Non-subjective Method of Measuring Contrast on the Set, Stanislaw Loth and Howard P. Jones, *Arriflex Corp., Blauvelt, NY.*

Modern Film Edge Number Systems, Ronald E. Uhlig, John C. Norris, Karen A. Suitor-Meiler, Fred Fuss and Tom Powers, *Eastman Kodak Co., Rochester, NY.*

A Multi-Axis, Location/Studio Camera and Object Motion Control System, Michael Azerad, John Pley, Joseph Dabby, and Ed Zwaneveld, *National Film Board of Canada, St. Laurent, Que., Canada.*

Three-Dimensional Animated Slit-Scan Cinematography for "Mac and Me," Jonathan Erland and Doug Smith, *Apogee Productions, Inc.;* Kevin Dole, *Cinesong;* and Paul Johnson, *Lynx Robotics.*

Electronically Variable Focus Screen for Ground Glass and Fog Simulation, Donald D. Kline, *Panavision, Inc., Tarzana, CA.*

New Fujicolor Negative Film, Kozo Noguchi, Yukihide Urata and Koichi Murai, *Fuji Photo Film Co., Ltd., Kanagawa, Japan.*

Projection of Images Photographed on Fujicolor Negative Films, Kozo Noguchi, Yukihide Urata and Koichi Murai, *Fuji Photo Film Co., Inc., Kanagawa, Japan.*

Session B: Advanced TV Transmission Systems I

Regulatory Developments Regarding Advanced Television Transmission Standards, Alex D. Felker, *Federal Communications Commission, Washington, DC.*

Signal Processing for Compatible HDTV, William E. Glenn and Karen G. Glenn, *New York Institute of Technology, Dania, FL.*

A Status Report on HD-NTSC™: Compatible HDTV in a Single Channel, Richard J. Iredale, *The Del Rey Group, Marina Del Rey, CA.*

An ATV System with NTSC Parameters, Yves Faroudja, *Faroudja Laboratories, Inc., Sunnyvale, CA.*

The MUSE Family — HDTV Transmission Systems, Y. Tanaka and T. Nishizawa, *NHK, Tokyo, Japan.*

130th SMPTE Technical Conference — List of Sessions

Day	Session A	Session B	Session C
Saturday morning	Opening Session		
Saturday afternoon	Archival & Lighting	Digital Distribution/Transmission of TV Signals	TV Post Production I
Sunday morning	Film Production Technology	Advanced TV Transmission Systems I	
Sunday afternoon	Film Laboratory Technology	Advanced TV Transmission Systems II	TV Post Production II
Monday morning	Film Presentation Technology	Advanced Television Production Systems I	Satellites
Monday afternoon	Sound Technology	Advanced Television Production Systems II	Graphics
Tuesday morning	Post Production (Film/TV)	Fiber Optics	Automation for TV
Tuesday afternoon	Post Production (Film/HDTV)	Small Format Video Recording	
Wednesday morning	Video Processing	New Technology in Imaging and Display I	
Wednesday afternoon	TV Audio	New Technology in Imaging and Display II	

Efficient Use of Bandwidth in "Two Channel" HDTV, M. Tsinberg and C. A. A. J. Greebe, *Philips Laboratories, Briarcliff Manor, NY*.

Advanced Compatible Television: A Progress Report, Charles B. Dieterich, Michael A. Isnardi and Terrence R. Smith, *David Sarnoff Research Center, Princeton, NJ*.

Reliable EDTV/HDTV Transmission in Low-Quality Analog Channels, William F. Schreiber and Andrew B. Lippman, *Massachusetts Institute of Technology, Cambridge, MA*.

Sunday Afternoon

Session A: Film Laboratory Technology

An Historic Overview of Bleachbaths and Bleachfixing Baths Used in the Photographic Industry, Karel Brems, *Agfa-Gevaert N.V., Mortsel, Belgium*.

A Survey of Motion Picture Processing Improvements, R. W. Bauer, E. A. Kurz and M. M. O'Malley, *Eastman Kodak Co., Rochester, NY*.

HFC 300D Digital Video Color Film Analyzer, Continuation of A New Generation, Harry Teitelbaum, Al Arbeeny and Mark Levine, *Hollywood Film Co., Los Angeles, CA*.

Film Analysis Using Digital Imaging Techniques, Michael V. Chewey and David Williams, *Bremson Data Systems, Lenexa, KS*.

The Film Facit™ 3000H Color Film Analyzer — An Update, Julian D. Hopkinson and Joseph C. Wary, *LMC Peterson, Inc., Chatsworth, CA*.

A Network for Collection and Dispersal of Timing Data with Gateways to Lab Control and Accounting Networks, Michael V. Chewey, *Bremson Data Systems, Lenexa, KS*.

A New Breed of Motion Picture Printer, the CCP or Computer Controlled Printer, Nigel Varian, *Filmlab Systems Int'l. Ltd., High Wycombe, England*.

Formaldehyde Issues in Motion Picture Processing, R. W. Bauer, E. A. Kurz and R. C. Sehlin, *Eastman Kodak Co., Rochester, NY*.

Session B: Advanced TV Transmission Systems II

HDTV AT 45 Mbits, Joe Osborne, *Osborne Associates, Inc., Pompano Beach, FL*.

The Use Of Genesys Technology for HDTV, Richard C. Gerdes, *Production Services, Inc., Tucson, AZ*.

NTSC Compatible EDTV System for Satellite and Terrestrial Channels, Ron D. Katznelson and Edward A. Krause, *VideoCipher Div., General Instrument Corp., San Diego, CA*.

An NTSC Compatible High Definition Broadcast System, Joshua P. Hill, *Viento Laboratories, Inc., New York, NY*.

HDTV and EDTV, Tamotsu Omura and Masae Sugimoto, *Broadcast Technology Assn. (BTA), Tokyo, Japan*.

The Eureka 95 Project — The European Approach Towards HDTV, P. W. Bogels, *Philips International, Eindhoven, The Netherlands*.

The FCC Advisory Committee on Advanced Television Service, Irwin Dorros, *Bellcore, Livingston, NJ*.

Panel Discussion: Advanced TV Transmission Systems

Session C: TV Post Production II

An Interactive Video Authoring and Simulation WorkStation: The Integration of Photographic with Electronic Imaging and Sound, Using a Micro-Computer and Icon-Based Authoring Software, Michael

Azerad and Ed Zwaneveld, *National Film Board of Canada, St. Laurent, Que., Canada*.

D2 Digital Editing Suite, Frank Cox, *DSC, Gainesville, FL*.

"Digital Paper" — Flexible, Optical Storage Media for the Motion Picture Industry, Steven J. Abbott, *ICI Electronics, Cheshire, England*.

Effects Editing with Integrated Machine Control, Robert L. Lay and Charles P. Clarke, *Digital F/X, Inc., Santa Clara, CA*.

A New System for Interactive Picture and Sound Editing in Video Production, Philip Hall, *Solid State Logic*, and Bill Aitken, *Quantel Ltd., Newbury, Berkshire, England*.

Videotape Editing Using PC-Based Systems Operating Over a Local Area Network, Brian G. Lay, *WNEV-TV, Boston, MA*.

"Editing with Pictures": From Kerosene to Electricity, David Scammell, *Quantel, Inc., Stamford, CT*.

One Year of Daily Digital TV Production, Michael Oudin, *Société Française de Production, Paris, France*.

Non-Real Time Motion Control Video, Jonathan Erland and Doug Smith, *Apogee Productions, Inc.*; Al Miller and Paul Johnson, *Lynx Robotics*; Michael Hartt and Fred van Roessel, *BTS, Darmstadt, W. Germany*.

Monday Morning

Session A: Film Presentation Technology

Considerations in the Use of Estar and Acetate Motion Picture Films, John C. Norris and Fred C. Franzwa, *Eastman Kodak Co., Rochester, NY*.

Soviet Motion Picture Technology at a

New Stage of Development, A. Chernoyarsky, *NPO "KADR" and NIKFI, Moscow, Soviet Union.*

35mm Release Prints Using Dolby SR on Photographic Sound-Tracks — A Progress Report, Ioan Allen, *Dolby Laboratories, San Francisco, CA.*

30 Frames-Per-Second — The Impact on Audio Quality with 35mm Photographic Sound-Tracks, Ioan Allen, *Dolby Laboratories, San Francisco, CA.*

Digital Sound Feasibility Update, Ronald E. Uhlig and Robert L. Cirulli, *Eastman Kodak Co., Rochester, NY.*

Loudspeakers Above the Screen — Can They Work? Brian L. McCarty and Kenneth Jacob, *Bose Corp., Hollywood, CA.*

Edge Coding for Release Prints, Ioan Allen and Doug Mandell, *Dolby Laboratories, San Francisco, CA.*

Repeat of presentation with commentary that was part of the last paper presented in the Film Production Technology Session on Sunday morning.

Session B: Advanced Television Production Systems I

Note: The following papers will be divided between this session and *Advanced Television Production Systems II* to be presented on Monday afternoon. See the conference program booklet for the order of presentation.

The Impact of HDTV on Production, Keith R. Field, *Canadian Broadcasting Corp., Que., Canada.*

Technical Aspects of Making the CBS HDTV Movie of the Week, William C. Nicholls, *CBS Inc., New York, NY.*

Towards a World Studio Standard for HDTV, Dominique Nasse and CCETT, *Cedex, France*, and Jean Chatel, *Thomson-CSF, Sevigne, France.*

Advanced HDTV 50 Hz to 60 Hz Standards Conversion, M. Lamnabhi, *Laboratoire D'Electronique et Physique (Philips) Cedex, France*, and P. Robert, *Thomson-CSF LER, Sevigne, France.*

A High Quality Distribution Switcher for HDTV, David L. Bytheway, *BTS, Salt Lake City, UT.*

New Production and Broadcasting Standard, Francis Hericourt, Bernard Tichit and Francis Delmas, *Thomson Video Equipement, Cergy St. Christophe, France.*

HDTV Digital VTR, L. Thorpe, K. Tsujikawa and Y. Fujiwara, *Sony Advanced Systems, Teaneck, NJ.*

HDTV Downconverter, L. Thorpe, K. Tsujikawa, N. Ninohiya and Y. Fujiwara, *Sony Advanced Systems, Teaneck, NJ.*

An Industrial Applications Hi-Vision VTR Using the 1/2-Inch Video Cassette, Hiromichi Shibaya, *NHK, Tokyo, Japan.*

Electronic Compositing, James A. Gaspar, *CBS, Inc., New York, NY*, and John Dykstra, *Apogee Productions, Inc., Van Nuys, CA.*

HDTV Production Colorimetry, LeRoy DeMarsh, *Eastman Kodak Co., Rochester, NY.*

HD-Pro™: A Global High Definition Production Standard, Richard J. Iredale, *The Del Rey Group, Marina Del Rey, CA.*

High Definition Electronic Production — A Standard to Build On, Richard J. Stumpf, *Universal City Studios, Universal City, CA.*

Synthevision: A Technique for Chroma-Key with Wide Background, Shigeru Shimoda, Yasuaki Kanatsugu and Masaki Hayashi, *NHK, Tokyo, Japan.*

High-Definition Optical Disc Playback System, L. Thorpe, K. Tsujikawa and Y. Fujiwara, *Sony Advanced Systems, Teaneck, NJ.*

An Advanced Television Image, Charles Rhodes, *Philips, Briarcliff Manor, NY*, and Bruce Sidran, *Capital Cities/ABC, New York, NY.*

Session C: Satellites

A Video TDM System Which Maintains Spatial and Temporal Resolution for Two Pictures from Different Uplinks Without the Loss of Satellite Downlink Power, Robert J. Butler, *Leitch Video Int'l. Inc., Syosset, NY.*

Adjacent Satellite and Ground Station Interference, George Hrycenko, *Hughes Communications, Inc., Los Angeles, CA.*

Propagation Phenomena and Terrestrial Interference, Reed McClellan Burkhart, *Hughes Communications, Inc., Los Angeles, CA.*

Monday Afternoon

Session A: Sound Technology

Some Methods for Minimizing Spectrally Induced Amplitude Modulation Artifacts in Photographic Sound Recording Systems, Charles Nairn, *Communications Technology, Ltd., Detroit, MI.*

Applications of a Vari-Speed Processor for Film, Jon C. Schmidt, *Universal Recording Corp., Chicago, IL.*

Technical Design Considerations of a Reference Quality Screening Room, Ioan Allen, *Dolby Laboratories*, and David Schwind, *Charles Salter & Associates, San Francisco, CA.*

Report of the Study Group on Digital Sound for Motion Picture Distribution, Ronald E. Uhlig, *Eastman Kodak Co., Rochester, NY.*

A High Capacity Automated Digital Sound Effects Storage and Retrieval System, Morris Jaslowitz, Terry D'Silva and

Ed Zwaneveld, *National Film Board of Canada, St. Laurent, Que., Canada.*

The Acoustical Renovation of Disney Pictures Theater, David R. Schwind, *C. M. Salter Assoc., Inc., San Francisco, CA.*

Audio Program Metering in the 1980's: The Work of the IEEE Audio Measurements Subcommittee, Randall Hoffner, *NBC, Inc., New York, NY.*

The Caveat Group Recommended Practices on Audio for the Visual Media, Thomas E. Miller, *Universal Recording Corp., Chicago, IL.*

Session B: Advanced Television Production Systems II

Note: The section on *Advanced Television Production Systems I* (Session B, Monday morning) has the complete list of papers for this topic. Those papers will be divided between that session and this one. See the conference program booklet for the order of presentation.

Session C: Graphics

Considerations in the Design of a Character Generator, Roi D. Agneta, *Chyron Corp., Melville, NY.*

Computer-Driven Results in an On-Air Control System, R. A. Pank, *Quantel, Ltd., Newbury, Berkshire, England.*

Real Time 3D Graphics Using the IBM PC/AT, Christopher Chaleki and Ted Williams, *Amherst Electronic Instruments, Inc., Haydenville, MA.*

Expanding the Video Workstation Concept-Linking 2D and 3D Effects, Jeffrey Schier, *Pinnacle Systems, Santa Clara, CA.*

Successful Application of Real-Time Digital Compositing in Anti-Aliased Text and Graphics Generation, Ginny Faison, Garn Morrell and Dimitri Chernyshov, *Quanta Corp., Salt Lake City, UT.*

A Digital Platform for Video Production, Richard Daly, *ColorGraphics Systems, Inc., Madison, WI.*

Digital Video Optical (DVO): The Next Generation of Composing Images with Programmability, Resolution, Independence and Open Architecture, Robert Greenberg, Joel Hynek, Aram Friedman and Christopher Woods, *R/Greenberg Associates, New York, NY.*

Tuesday Morning

Session A: Post Production (Film/TV)

Computer Controlled, Optical and Electronic Subtitling for Films, Morris Jaslowitz, Joseph Dabby and Ed Zwaneveld, *National Film Board of Canada, St. Laurent, Que., Canada.*

Telecine Colorwatch Program, Arthur E.

Florack, *Eastman Kodak Co., New York, NY.*

Time Code on Film — Building Bridges Between Film, Video and Audio, Advanced Techniques, Moe Shore, *Panavision, Inc., Tarzana, CA.*

3/2 Pull-Down Encoding: A Time Code Method of True Film Frame Identification, Stephen Scott, *Skotel Corp., Bros-sard, Que., Canada.*

Procedures for Training Film Post-Production Personnel in the Methodologies and Uses of Electronic Editing Equipment, Julia A. (Jill) Stanton, *Cinedco, Glendale, CA.*

Analysis — Computer-Aided Editing and Feature Films, Milton Forman and Herb Dow, *Cinedco, Inc., Los Angeles, CA.*

The Macintosh for Audio Post Production, Frank Serafine, *Serafine FX, Inc., Santa Monica, CA.*

Electronic Advances in the Creative Art of Editing, Herbert H. Dow, *Cinedco, Inc., Glendale, CA.*

Session B: Fiber Optics

CBS Experience with Broadcast Quality Bit Reduction Codecs, Bruce Ross, *CBS, Inc., New York, NY.*

A Packet Video/Audio System Using the Asynchronous Transfer Mode Technique, H. J. Chao, C. A. Johnston and L. S. Smoot, *Bell Communications Research, Inc., Morristown, NJ.*

Digital Transmission of a 243 Mbit/s Digital Video Color Signal Via Optical Fibers, C. Clavierie, C. Delattre and J. Oyaux, *Thomson Video Equipement, Cergy St. Christophe, France.*

How to Achieve Transparent Transmission of Multiple Videos per Fiber, David E. Zimmerman, *Grass Valley Group, Grass Valley, CA.*

Transmission of HDTV and Audio Signals Over One S. M. Fiber, P. S. Natarajan, P. S. Venkatesan, M. D. Austin, J. Orost and C. C. Forbes, *Bellcore, Red Bank, NJ.*

Panel Discussion: Fiber Optics

Session C: Automation for TV

Real Time Automated Video Measurements with High-Speed and Accuracy, Author to be announced, *Marconi Instruments, Inc., Allendale, NJ.*

The M.A.R.C. II System: A Modular Multiple Robotic Automatic Record/Play System, Philip Livingston, Masaaki Notani, Michael Min and Mark Mifflin, *Panasonic Broadcast Systems Co., Secaucus, NJ.*

The Impact of Cart Machines on Broadcast Automation, Tim L. Crabtree and David E. Lewis, *Odetics, Inc., Anaheim, CA.*

Library Management Systems — Applications and Implementation, Raymond K. Baldock and Hajime Tekeuchi, *Sony Corp., Teaneck, NJ.*

Development and Operation of New Systems for Commercial Filing and On-Air, Masao Kajiyama, Keisuke Sugihara, Naoji Tetsuo and Fukuo Karakama, *Tokyo Broadcasting System, Inc., Tokyo, Japan.*

A Unique System for Controlling Television Equipment Analog Functions, Merv Graham, *Graham-Patten Systems, Inc., Grass Valley, CA.*

NBC Camera Robotics System, Ray Lowe, *NBC, Inc., New York, NY.*

Workstation Development: A Plan for the Future at NBC, Ralph K. Strader, *NBC, Inc., New York, NY.*

Tuesday Afternoon

Session A: Post Production (Film and HDTV)

Noise Implications of Electronic Color Masking in Film/Electronic Hybrid Systems, Richard C. Schlin, Douglas G. Walker and Glenn L. Kennell, *Eastman Kodak Co., Rochester, NY.*

A Report On The Interface Between HDTV & Film, James A. Mendrala, *San Fernando, CA.*

Montage and Electronic Editing — The Next Generation, Chester L. Schuler, *Montage Group, Ltd., New York, NY.*

Present Status of Laser Telecine and Laser Beam Film Recording for HDTV, Yuji Nojiri, Hiroshi Hirabayashi, Yutaka Tanaka, Yukio Sugiura, Teruo Kawai and Toshio Motoki, *NHK, Tokyo, Japan.*

HDTV Camera Light Transfer Characteristics, George Gabritsos, Henry Mahler and James Gaspar, *CBS, Inc., New York, NY.*

Chroma-key Processing by HDTV Using Film as a Background, Takeo Nose, *Toyo Cinema Co., Ltd., Tokyo, Japan.*

Two-Dimensional Electronic Correction of Film Unsteadiness in Real-Time, Dieter Poetsch, *BTS, Darmstadt, W. Germany.*

Session B: Small Format Video Recording

Overview: Report of the Committee, Robert Thomas

The Future Potential of Video Tape Performance, Brian Gustard, *Pfizer Pigments Inc., Easton, PA.*

Betacam SP — The First Year, Karl Renwanz, *WNEV-TV, Boston, MA.*

Two Years of M-II — A Progress Report, Peter Smith, Frank Davenport and Steve Mahrer, *NBC, Inc., New York, NY.*

A New Broadcast Digital VTR Format,

Ichiro Arimura, Masahiko Matsui, Chojiro Yamamitsu and Jukka Hama-lainen, *Panasonic Broadcast Systems Co., Secaucus, NJ.*

High Picture Technologies for a S-VHS Portable VCR, M. Oku, I. Aizawa, N. Azuma, S. Okada, K. Hirose and M. Ozawa, *Hitachi, Ltd., Yokohama, Japan.*

Friction — Its Influence in Small Format Rotary Recorders, Heinrich L. Zahn, *Consultant, Rossdorf, W. Germany.*

Recording at High Volumetric Packing Density, Irving Wolf and Thomas Neuman, *Ampex Corp., Redwood City, CA.*

Obtaining Consistent Picture Quality with Component Analog Video Recorders, L. A. Freeman, *Ampex Corp., Redwood City, CA.*

A Manufacturer's Position to the Report of the (SMPTE) Ad Hoc User Group for Small Digital Television Tape Recorder, Juergen K. R. Heitmann, *BTS, Darmstadt, W. Germany.*

Panel Discussion: Small Format Video Recording

Wednesday Morning

Session A: Video Processing

Overview: A discussion on the issue of the number of bits required to adequately process a video signal.

Bits, Brush Fires and Bailing Wire, Peter D. Symes, *Grass Valley Group, Grass Valley, CA.*

Dynamic Rounding: An Update, D. Peter Owen, *Quantel, Inc. Stamford, CT.*

Maintaining Full 4:4:4:4 Resolution Through the Post Production Process, Charles P. Clarke, Michael Ogrinc and Shane Dickey, *Digital F/X, Inc., Santa Clara, CA.*

An Advanced NTSC Digital Decoder, D. M. Creed, *Sony Broadcast, Ltd., Basingstoke Hants, England.*

Noise Reduction in Video Applications, Hans-Peter Richter, *BTS, Darmstadt, W. Germany.*

Enhanced NTSC: Applications and Impact, Christian Tremblay, *Central Dynamics, Pointe Claire, Que., Canada.*

Implementation of a Programmable System for Real-Time Digital Video Processing, Michel Fortier and Eric Dubois, *INRS-Telecommunications, Verdun, Que., Canada.*

A New Tool for Post Production: The Digital Color Corrector, Francoise Semin and Georges Labb, *Thomson Video Equipement, Cergy St. Christophe, France.*

Session B: New Technology in Imaging and Display I

Note: The following papers will be divid-

ed between this session and *New Technology in Imaging and Display II* to be presented on Wednesday afternoon. See the conference program booklet for the order of presentation.

A 2-Million Pixel CCD Image Sensor for HDTV Uses, Nozomu Harada, Sohei Manabe, Akihiko Furakawa, Yuji Ide, Hidetoshi Nozaki and Minoru Kimura, *Toshiba Corp., Kawasaki, Japan.*

The KCH 1000 — A Multi-Standard HDTV Camera System, Wolfram Klemmer, *BTS, Darmstadt, W. Germany.*

A High-Definition Television CCD Color Camera, Ikuo Akiyama, Kenji Nagano, Hiroshi Nakajima, Yasuichi Ushiyama and Eiji Oda, *NEC Corp., Kanagawa, Japan.*

2nd Generation: The Development of "Smart" CCD Color Camera, K. Nagai, S. Yamamoto, K. Umise, R. Hidaka and R. Yokota, *NEC Corp., Tokyo, Japan.*

Some Considerations for a CCD Production Camera, Engbert Tienkamp, *BTS, Mahwah, NJ.*

Optics for CCD and HDTV, Victor Goldsztejn and Yoko Ihda, *Nikon Inc., Garden City, NY.*

Computer in Optics — A Breakthrough in Zoom Lenses, Bernard Angenieux and Gerard Corbasson, *Angenieux Corp. of*

America, Miami, FL.

Standardization of Design Parameters for CCD Camera Lenses, Kazunori Ohnishi, *NHK, Tokyo, Japan.*

A Tutorial on Display Colorimetry, Paul M. Thomsen, *Conrac Display Products Group, Duarte, CA.*

A Portable Prompter System Equipped with a Liquid Crystal Display, Taijiro Seo, *NHK, Tokyo, Japan,* and Takeshi Kuwata, *Asahi Glass Electronic Products R&D Center Co., Ltd., Yokohama-shi, Japan.*

The Monitoring of Video Pictures in Different Formats and Standards, Joost Verbrugge, *Barco Industries, Kortrijk, Belgium.*

Panel Discussion: New Technology in Imaging and Display

Wednesday Afternoon

Session A: Audio for TV

An Audio Mixing Console Architecture for Film and Video Post Production, Chris David, *Solid State Logic, Inc., Hollywood, CA.*

Interconnecting Digital Audio Multi-Channel Equipment, J. Wilkinson, *Sony Broadcast, Ltd., Basingstoke Hants, England.*

Audio Performance of Professional VTR's, Charles P. Repka, *NBC, Inc., New York, NY.*

Descriptive Video Services: Television for the Blind, F. Cary Wight, *PBS, Alexandria, VA.*

Evolution and Innovation in Stereo Television, 1982-Future, Elizabeth A. Cohen, *Charles M. Salter Associates, Inc., San Francisco, CA.*

Digital Audio HDTV Using Adaptive Differential Entropy Coding, C. S. Weaver and A. B. Conner, *Digideck, Inc., Mountain View, CA.*

NTSC-Compatible Digital Data Transmission, P. Beckmann, J. L. Koslov, J. J. Gibson and D. Raychaudhuri, *David Sarnoff Research Center, Princeton, NJ.*

Session B: New Technology in Imaging and Display

Note: The section on New Technology in Imaging and Display I (Session B, Wednesday morning) has the complete list of papers for this topic. Those papers will be divided between that session and this one. See the conference program booklet for the order of presentation.

Unclassified Papers (see program for final placement)

