

Broadcast Technology Society Newsletter

The technologies to deliver information and entertainment over the air, cable, satellite and Internet to audiences worldwide, at home and on the go.

From the President



Dear BTS Members:

As this issue of the Newsletter goes to press, several of us are on the way to Amsterdam for the International Broadcasting Convention.

April Monroe, Mike Bennett, Yiyun Wu, and I will be supporting BTS' participation in the joint IEEE/SMPTE tutorial, focus groups being conducted by the IEEE Strategic Research people, and our membership booth in the Partnership Village. We always look forward to seeing many of you there.

As I reported last time, the focus groups at IBC are the second in a

series of sessions targeting professionals in Broadcasting, Multimedia, and Entertainment Technology, as part of an IEEE Membership Development Committee initiative. The purpose of this initiative is to determine the needs of those in this technology segment in order to guide IEEE in developing products and services to address them more effectively. The first two sessions were held at NAB in April.

The 17 participants at NAB all shared one major problem that has many facets -- how to keep up with the vast and rapidly changing technology within the industry. The more experienced broadcast engineers voiced a need to understand the increasingly complex web of intercon-

nected equipment, including computers and networks, within their facilities. At the same time, they decried
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From the Editor



With a huge amount of help from Ted Kuligowski we are getting the Newsletter back on schedule again. In this issue we have reports from several of our BTS

chapters around the world. Ted is working with the chapters and we hope to make these reports a regular feature of the Newsletter and be able to have reports from all the chapters. If your chapter does not have a report this time

please respond to Ted's request for input so it can be included in the next issue. Also Ted is happy to work with you to put together a good report but you must take the first step and provide him some material to work with.

By the time you get this our annual Symposium will only be a short time away. If you have not yet registered do it today because our Symposium committee headed by Guy Bouchard has put together another great program. This is a must attend event where you have the opportunity

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From the Editor continued

ty to see old friends, make some new ones, network and at the same time learn about technology advances in your industry from those involved. Further details can be found inside.

Also in this issue you will find more information on the major new initiatives being launched by our Society that were mentioned briefly in the last Newsletter. These initiatives have come out of the Society's ongoing strategic planning sessions and are meant to make our Society more relevant to our members as well as to attract new members from areas of "broadcasting" that are not being adequately served by any of the IEEE societies. Please take the time to read what is going on and to offer your support to these worthwhile activities. Remember ours is an organization that relies on volunteers to function and without the support of the membership nothing gets done so get involved.

It is also time for IEEE elections and you will find inside statements from each of the three candidates for IEEE President Elect, 2006. These statements were provided by the candidates in response to an invitation by your editor for each of them to share their position as it relates to the BTS. Take the time to read the statements and then be sure to vote.

As we are about to print this edition, cleanup is beginning in the United States in the aftermath of hurricane Katrina. Our sympathy goes out to those who lost friends and loved ones in this tragic event as well as those whose homes and places of employ-

ment were destroyed. However, I am certain that had it not been for broadcasting the death toll would have been much greater. Although we receive a great deal of our news from broadcasting, I think that most people think of broadcasting more for its entertainment value but in this case broadcasting was really a life or death matter. Thanks to all those who help keep us informed about these life threatening situations your efforts are greatly appreciated.

As always – let me hear from you -

comments, suggestions and criticism are all welcome. I also encourage you to share your knowledge and experiences with our readers by taking the time to submit a brief article or even a long one if you have the time. Furthermore, keep in mind that this is a newsletter so help keep our readers informed by passing on items of interest about people and/or events that affect our industry.

Bill Meintel
wmeintel@computer.org

From the President continued

the lack of traditional broadcast knowledge they see in freshly minted technology graduates, who are more fluent in newer multimedia skills. There is a need for better communication, and cross-fertilization, between traditional broadcast engineers and those involved in new media technologies.

As documented in the report prepared by the consultant who moderated the focus groups, the participants identified a few areas in which they felt that IEEE could be of great value: (1) Serving as an information resource to analyze the future course of technology development; (2) Providing basic level training and information on how multimedia production technology interacts with their computers and networks; (3) Providing information on current standards and those under development that affect the broadcast/multimedia industry; (4) Bringing together users of broadcast/multimedia technology, design engineers, and computer experts to develop a common language and understanding of how the systems interact and must work together; and (5) Providing

technical support for the development of university-level training that will give graduates the skills they need to work in the broadcast/multimedia industry.

On the basis of the two groups at NAB, it is premature to draw conclusions regarding how IEEE might best meet the needs of the broadcast/multimedia industry as a whole. It will be interesting to see the extent to which the problems and needs raised by the participants at IBC mirror those of the NAB panels.

In the meantime, BTS is planning some initiatives of our own next year that will begin to address multimedia technology as well as the need for more education and training. Details are in an article inside this Newsletter. We'll keep you informed as we glean more information from our research and further develop our plans. Please let us know how we're doing from your perspective.

Tom Gurley
President
IEEE Broadcast Technology Society
tgurley@ieee.org

Newsletter Deadlines

The BTS Newsletter welcomes contributions from every member. Please forward materials you would like included to the editor at wmeintel@computer.org. Here are our deadlines for upcoming issues:

Issue	Due Date
Winter, 2005	October 20, 2005
Spring, 2006	January 20, 2006
Summer, 2006	April 20, 2006
Fall, 2006	July 20, 2006

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Announcing the 55th Annual IEEE Broadcast Symposium

The 55th Annual IEEE Broadcast Symposium will be held October 12-14, 2005 at its historic home: The Hotel Washington in Washington, DC.

The Annual Broadcast Symposium, presented by the Institute of Electrical and Electronics Engineers (IEEE) Broadcast Technology Society (BTS), consists of three full days that include technical papers, a joint luncheon with the Association of Federal Communications Consulting Engineers (AFCCE), and annual society awards luncheon.

Wednesday, (October 12) will be a full day of Mobile and Multimedia Broadcasting papers followed by an evening session on Technical Regulatory Issues.

On Thursday (October 13), the technical program features sessions on Audio Broadcasting and DTV System Performance and Measurements. The speaker for the Joint AFCCE/IEEE Luncheon will be Marsha J. MacBride, Executive Vice President, Law and Regulatory Policy, National Association of Broadcasters. The annual Evening Reception provides an opportunity to mingle and meet with broadcast media technologists from around the world.

Friday (October 14) features Satellite Broadcasting and Distributed DTV Transmission technical sessions, concluding with a panel discussion on Distributed Transmission. The Friday program also features the annual Broadcast Technology Society Awards Luncheon.

Full program information and registration for the Broadcast Symposium may be found at <http://www.ieee.org/organizations/society/bt/sympo.html>. Early registration discounts are available through October 1, 2005.

In addition to the engineering sessions, two luncheons are planned. On Thursday the annual IEEE/AFCCE (Association of Federal Communications Consulting Engineers) joint luncheon will be held. The keynote speaker for this luncheon will be Ms. Marsha MacBride, NAB's Law and Regulatory Policy Chief. The Broadcast Society's annual awards luncheon will take place on Friday. A Thursday evening reception will provide an opportunity for networking and a chance to catch up with colleagues traveling from around the globe to attend this annual event.

The technical sessions planned for Wednesday, Thursday and Friday, respectively, are (1) Mobile & Multimedia Broadcasting I & II, (2) Technical Regulatory Issues, (3) Audio Broadcasting, (4) DTV System Performance & Measurements, (5) Satellite Broadcasting, and (6) Distributed DTV Transmission. Technical paper presentations will take place each morning and afternoon, and on Wednesday evening, with each session typically consisting of five 30-minute technical papers or a panel discussion.

The IEEE Broadcast Technology Society (BTS) presents the latest technologies to deliver information and entertainment over the air, cable, satellite and Internet to audiences worldwide, at home and on the go -- through its annual Symposium and its publications, including the quarterly IEEE Transactions on Broadcasting and Society Newsletter. The Society has nearly 2000 members worldwide.

BTS welcomes all engineers, consultants, and others interested in media technology to attend the 55th Annual IEEE Broadcast Symposium.

Dates: October 12 through October 14, 2005

Event: 55th ANNUAL IEEE BROADCAST SYMPOSIUM

Place: The Hotel Washington
Pennsylvania Ave at 15th Street, NW,
Washington, DC 20004

Tel: (202) 638-5900

Fax: (202) 638-1594

Reservations via email: Reservations@hotelwashington.com

Telephone: 1-800-424-9540 (international: 1 202 638 5900)

Mention "IEEE Broadcast Symposium" to receive the block rate of \$160/night.

Times:

Technical program 9AM to 5PM October 12th, 13th and 14th

Special Wednesday evening session on "Technical Regulatory Issues"

IEEE/AFCCE Joint Luncheon 12:30PM October 13th

Reception 6:00 PM October 13th

Annual IEEE BTS Awards Luncheon

12:30PM October 14th

Contact:

Symposium Chair:

Guy Bouchard

Canadian Broadcasting Corporation

guy_bouchard@radio-canada.ca

Symposium Web Site:

www.ieee.org/bts

For information about the Broadcast Technology Society activities and membership, contact April Monroe, IEEE Broadcast Technology Society Administrator, at (732) 562-3846, or by e-mail at a.monroe@ieee.org.

See Page 14 for the current Technical Program

BTS Receives Statements from Candidates for IEEE President-Elect, 2006

This is the time of year to choose whom you would like to see in leadership positions at the IEEE. The opportunity to vote in the annual IEEE election is a privilege of your membership. We hope that you will take the time to complete and submit your ballot.

As your Newsletter Editor, I contacted each of the three Candidates who have been nominated for IEEE 2006 President-Elect and requested that they provide a statement for publication in the BTS Fall Newsletter. The individual statements sent to the BTS by the Candidates are provided below for your review and consideration.

To further help you make an informed decision this voting season, please visit the election Web site at: <http://www.ieee.org/elections>. There, you can link to the candidates' statements and their background information. You will find links to the three Candidates for IEEE President-Elect, 2006 and also to the two Candidates for Division IV Delegate-Elect/Director-Elect 2006, Division Delegate/Director, 2007-2008. The IEEE Broadcast Technology Society is part of the IEEE Technical Division IV- ELECTROMAGNETICS AND RADIATION.

In addition to voting for IEEE President-Elect 2006, you are also eligible as a member of BTS to vote for a candidate to become Division IV Delegate-Elect/Director, 2006.

In 2005, members may choose from one of several ways to cast their ballots.

-- You may transmit your ballot electronically. To access materials electronically and be authenticated to vote, you must have your IEEE member/pin numbers, or your web account username/password, or the Control Number and E-signature provided by the election vendor as part of your paper ballot. Or,

-- You may choose to mail your ballot. To ensure that your paper ballot is counted, you must sign and return it in the postage-paid envelope provided in the ballot package. If you do not use the envelope provided, you may mail your signed ballot to:

Survey & Ballot Systems, Inc.

P.O. Box 46430

Eden Prairie, MN 55344-6430 USA

Mail early to allow for delivery by the deadline. All ballots must be received by 1 November 2005 by 12 o'clock noon, Central Time USA (18:00 GMT).

If you transmit your ballot electronically, it is NOT necessary to return a signed ballot by postal mail. If a member casts ballots both ways, only the first ballot received will be counted.

We encourage all BTS members to participate in this election and vote.

Statement provided to the BTS by Leah H. Jamieson, Candidate for President-Elect, 2006

I thank the Broadcast Technology Society for this opportunity to talk about my priorities for the IEEE. I also congratulate the Society and you, the BTS members, for taking this extra step to be informed voters.

In my position statement (<http://www.ece.purdue.edu/~lhj/IEEE>), I outline priorities in four areas:

- Nimbleness in emerging technologies: The rate of change of technology is accelerating. We must continue to improve our ability to address emerging technologies and establish ourselves as the place to go for novice-to-expert information about new areas. A critical aspect for Societies is collaboration, both within and beyond IEEE. Societies that grow new technology communities and participate in new technology collaborations and activities should have access to seed funds and share in the resulting revenue.
- Agility in the changing information culture: Publishing is at the heart of IEEE's business and its service to the profession. We must develop our understanding of how people – especially young people – access, use, organize, and share information. We must work with our Societies and their publications to develop new products and services through “rapid deployment” experiments using new media and new web commerce capabilities.
- Career-long support: Current estimates put the half-life of engineering knowledge at five years. Just as IEEE is the preferred source for highest quality technical information, it should become the preferred source for highest quality educational material for lifelong learning, supporting professional development and bridging career transitions.
- Global relevance, local needs: IEEE's structure gives us the opportunity to knit together the global nature of engineering with an understanding of specific local and regional needs. We should take advantage of this global nature to enhance members' ability to be effective in the global engineering profession.

I would be honored to lead the IEEE in tackling these critical issues.

Leah Jamieson
L.Jamieson@ieee.org

Statement provided to the BTS by Gerald H. Peterson, Candidate for President-Elect, 2006

I am honored to be a candidate for the office of IEEE President-elect 2006, and to have this opportunity to share a few brief remarks on my candidacy - please see my web site: "http://ghpeterson.home.att.net"

Over 37 years, I have held positions in hardware and software design and engineering management and hold one US Patent in the field of telecommunications. In the past 17 years I have specialized in industry global strategic standardization. I currently hold the position of Senior Manager Emeritus at Lucent Technologies Bell Labs.

I hold Electrical Engineering degrees from the University of Washington and Rutgers University (both in the USA). I am a member of the Tau Beta Pi Engineering Honor Society. In

2001 I was recognized as a "Who's Who" in its publication, THE BENT of Tau Beta Pi. Also in 2001 I received the American National Standards Institute's Finegan Standards Medal for leadership in the development and application of voluntary standards. In addition to my leadership experience in the IEEE, I have served in elected national and international leadership positions that have delivered global technical standards and promoted increased global cooperation. We live in a time of accelerating change and globalization. The IEEE must respond to and help drive these changes if it is to continue to be a preeminent technical society. Key among these changes is how the IEEE delivers value to industry worldwide and, thus, value to the members of the IEEE. Our work

and focus is on technology, which we must carry out while maintaining connection to the real world of markets and social benefit. This is nowhere more felt than in the broadcast industry where the results of our technology are direct and critical to the delivery and program content of broadcasts.

I know both the importance and the scope of the responsibility of being IEEE President and Chief Executive Officer, and if elected I am committed to giving my full time and attention to the office of IEEE President in 2007. I appreciate your consideration and welcome your questions, comments, and suggestions.

Jerry Peterson
ghpeterson@ieee.org

Statement provided to the BTS by James M. Tien, Candidate for President-Elect, 2006

Let me begin by thanking those of you who collected signatures for my petition candidacy; I am now a 2006 IEEE President-Elect candidate because of your hard work!

My vision is for IEEE to be the "Global Resource of Choice" for scientific, educational and professional products and services. Consequently, IEEE must offer more global and portable member benefits (to support a typical career that includes multiple employers); IEEE must meet the continuing education needs of our members (who must update their knowledge base while being on the job); and IEEE must think and act globally for the profession and think and act locally for the members (who have different cultural and profes-

sional needs).

Another concern that will also affect BTS and all our technical societies is the growing demand for "open access"; that is, publications – especially those resulting from government funding – should be readily available and accessible. Even if open access does not necessarily imply "free access", it is obvious that we must curtail our dependency on publication revenues. We must develop new products and services (i.e., new sources of revenue). Indeed, in 2003 and as the newly elected EAB/VP, I worked with EAB staff and volunteers to launch IEEE/Thomson's forthcoming Expert Now (formerly known as XELL) web-based learning library; it will contain

the best of our conference tutorials and short courses and could serve as a new revenue source.

I have the qualifications to continue to help IEEE become the global resource of choice, especially given my experience as VP of Publications and VP of Education. Moreover, as per www.jimtien.com, I have extensive leadership experience and demonstrated excellence, including being elected to the US National Academy of Engineering.

Finally, I humbly ask not only for your vote, but also for your involvement: Together, We Can Advance IEEE's Global Value.

James M. Tien
Website: <http://www.jimtien.com>

New BTS opportunities emerging in Mobile & Multimedia Broadcasting Technology

The BTS AdCom members approved three new project initiatives and associated budgets at the June 2005 meeting. The new BTS project initiatives offer opportunities for enhancing and expanding BTS membership by continuing to meet their technical knowledge needs. The BTS projects are:

BTS Project 2006-1: Mobile & Multimedia Broadcasting Technology

BTS Project 2006-2: Conference / Publication on Mobile / Multimedia Broadcasting

BTS Project 2006-3: Broadcaster Education

Currently, these projects are in the preliminary development stages. BTS members are encouraged to join the teams now being formed to accomplish these new technology projects. Your knowledge and expertise shared with any of these teams will benefit our BTS and other Society members as well as non-IEEE professionals and organizations pursuing these new technical areas. If you are interested in participating and volunteering some of your valuable time to any of the above three projects, please send an email to BTS President Tom Gurley, tgurley@ieee.org, or to BTS Senior Administrator April Monroe at a.monroe@ieee.org and let them know how you would like to participate.

Below is an overview of the three new BTS projects.

Project 2006-01 Mobile & Multimedia Broadcasting Technology

Broadcasting, Telecommunications, and Consumer Electronics technologies are rapidly converging to create a new mode of delivery for broadcast content via mobile and multimedia devices such as cell phones and PDAs. This represents an emerging, but untapped, opportunity for BTS to serve its current members while encouraging new members who are working in this field to join

the BT Society. This BTS initiative includes funding for a consultant with broad expertise and contacts in this field, for surveys and similar outreach efforts to potential members, and for identification of appropriate products and services to address this new technology segment.

This project will also utilize results produced this year by the IEEE Membership Development Committee (MDC). In 2004 the MDC established a new Segment Initiative titled "Broadcast, Multimedia, and Entertainment Technology" with the objective to figure out how the IEEE can better serve this industry segment. The IEEE Membership Development Committee is working closely with the Broadcast Technology Society to meet the objective of this MDC Segment Initiative.

BTS Project 2006-2: Conference / Publication on Mobile / Multimedia Broadcasting

With reference to Project 2006-1 above, BTS is observing the rapid emergence of conferences on mobile and multimedia broadcasting, many of which are commercial, being conducted by for-profit organizations. At the same time, we are seeing increasing numbers of articles being published in the commercial trade and business press. This topic is a subset of the Portable Information Device technology area, which the IEEE Technical Activities Board (TAB) New Technology Directions Committee (NTDC) has identified as underserved by the IEEE. In response to this need, the NTDC established a Portable Information Device (PID) Group, in which BTS is participating.

In order to secure an early foothold for the IEEE and the BTS in the Mobile/Multimedia Broadcasting emerging technology area, the BTS believes that a conference and/or publication should be established as early as practical during 2006. The BTS is prepared to take on this effort as a BT project either on its own, in partnership with another society, or as part of the Workshop on Portable Information Devices being

proposed by the NTDC PID Group. At this time, the BTS is exploring all three options to maximize value/benefit to BTS and minimize duplication of effort by other IEEE entities.

BTS Project 2006-3: Broadcaster Education

In a number of surveys of members and non-members conducted by BTS and the IEEE Strategic Research Group, including a series of focus groups at the 2005 National Association of Broadcasters Convention, the need for better education and training has been consistently cited.

The BTS project 2006-3 initiative will provide funding for BTS to:

- (1) Develop tutorials and other educational materials
- (2) Provide scholarships, and
- (3) Reach out to educational institutions to identify other products and services that will enhance education and training in broadcast-related fields.

This BTS project will offer continuing technical education services to BTS members and others working in the broadcast-related fields to advance and maintain their skills and knowledge in state-of-the-art developments from broadcast-related emerging technologies.

As you can see from the above, 2006 will be an exciting and challenging year for these three new BTS project initiatives. For the latest information, the 2005 Broadcast Symposium will include on Wednesday, October 12, morning and afternoon sessions on Mobile and Multimedia Broadcasting.

Consider becoming part of one of these BTS project teams. By volunteering as a team member, you can exchange and share technical knowledge to benefit you and your colleagues toward career advancement in the rapidly expanding new technologies broadcast industry. We welcome your questions, comments, and suggestions regarding these new initiatives. Please send your email to BTS President Tom Gurley at tgurley@ieee.org or to BTS Senior Administrator April Monroe at a.monroe@ieee.org

IEEE Transactions on Broadcasting Ranked in Top 20 Journals of the 2004 Telecommunications Field

Based on the rankings of the 2004 Journal Citation Reports (JCR), published by Thompson ISI, the IEEE Transactions on Broadcasting became one of the top 20 journals in the field of Telecommunications in 2004. It ranked #20 out of 58 Journals listed under the Telecommunications category. In addition, the IEEE Transactions on Broadcasting ranked 92 out of 209 journals in the Electrical & Electronic Engineering category.

The IEEE publishes 12 out of the top 20 journals in Telecommunications. The JCR ranks journals by their impact factor, defined as the average number of times articles published in a specific journal in the previous two years were cited in a particular year. According to Thomson ISI, their Journal Citation Reports “presents quantifiable statistical data that provides a systematic, objective way to evaluate the world’s leading journals and their impact and influence in the global research community.”

The BTS extends its congratulations to Dr. Yiyang Wu, Editor-in-Chief, IEEE Transactions on Broadcasting, and his team including Kathy Colabaugh, IEEE Staff BTS Publications Administrator, April Monroe, IEEE Staff BTS Senior Administrator, the more than 20 volunteer Associate Editors, and more than 100 volunteer peer reviewers. The IEEE Transactions on Broadcasting continues to grow, with more and more papers being submitted for possible publication, while it continues achieving higher standards for quality and timeliness of papers published.

The growing trend of papers submitted and pages printed is shown in the table below:

Year	2006	2005	2004	2003	2002	2001
Papers Submitted	-	113*	140	120	95	80
Pages Printed	630 <i>planned</i>	560	450	430	410	410

*As of 25 August 2005

As reported in the BTS Summer Newsletter our Society is providing advance posting of papers approved for publication, whereby soft copies are posted on the IEEE website for members’ viewing prior to publishing of the hard copies. Our members are encouraged to access the IEEE Transactions on Broadcasting papers via the Internet (<http://www.ieee.org/organizations/society/bt/public.html>). It is one more service the IEEE provides in disseminating technical research information as rapidly as possible to its members.

The IEEE Transactions on Broadcasting has a continuing need for volunteers who have experience in reviewing papers. The reviewers will be requested by a BTS Associate Editor to review submitted papers and also to help guide the author for revising the paper, as needed, to improve the technical content, text, and topic organization into a high quality, easily readable, useful paper for the BTS Transactions on Broadcasting. A volunteer reviewer usually may be requested to review approximately two to three papers per year related to his/her area of expertise. The Editor-in-Chief and Associate Editors make every effort to distribute submitted papers in an equitable manner among the BTS volunteer reviewers to minimize the amount of time each reviewer is asked to provide in this activity.

If you are interested in volunteering as a reviewer for the IEEE Transactions on Broadcasting, please send your contact information and a short bio with a listing of your technical areas of interest to Kathy Colabaugh, BTS Publications Administrator, at bt-pubs@ieee.org. Ms. Colabaugh will acknowledge receipt of your email. She will also forward your information to Dr. Yiyang Wu, Editor-in-Chief, for his review. If you have any questions or need more information, you can also reach Ms. Colabaugh by phone at 1+732-562-3905. Thank you for your interest and support to the IEEE Transactions on Broadcasting and the IEEE Broadcast Technology Society.

Update of ATSC A/110 Published

By Jerry Whitaker, VP of Standards Development, Advanced Television Systems Committee, Inc

This summer has been a busy one for ATSC, with a half dozen ballots on revisions of key standards ranging from A/52 to A/110. Newly published ATSC Standards include the following:

- A/52B. Revision B of the “Digital Audio Compression Standard” corrected some errata in the detailed specifications, and added a new annex, “Enhanced AC-3 Bit Stream Syntax” which specifies a non-back-

wards compatible syntax that offers additional coding tools and features.

- A/53D. Revision D of the “ATSC Digital Television Standard” adds provisions for signaling transmission enhancements and includes a new annex describing the use of and constraints on E-AC-3 for E-VSB service.
- A/110A. Revision A of the “Synchronization Standard for Distrib-

uted Transmission” incorporates changes to the RF watermark system to provide for greater operational flexibility.

About A/110

The latest version of A/110 makes small but significant changes to the RF watermark signal to facilitate more efficient delivery of auxiliary data. The original RF watermark was

specified for transmitter identification and channel impulse response measurements in a single-frequency network environment. A/110 also provided for the modulation of the RF watermark, enabling its use for slow-speed data transmission, radio location finding, and a variety of other applications. For a watermark injection level 36 dB below the DTV signal, which has no impact on DTV reception, the bit error rate (BER) is $1E-15$. This means 769,000 years per transmission error! A/110A relaxes the watermark data robustness by a small amount in exchange for a higher data rate. This modification has following advantages:

- The RF watermark data rate is two or four times that of the previous standard, while retaining tremendous robustness.
- There is no impact on the RF watermark functionality.
- The data transmission is sufficiently

robust that it could be received by a mobile terminal.

Although the RF watermark in A/110 originally was developed for Distributed Transmission applications, the system was designed so that it also could be applied to conventional, single-transmitter systems.

The RF watermark consists of four consecutive binary sequences (16-bit Kasami sequences, together termed the TxID sequence), the total length of which equals the ATSC field length. The modulation of the RF watermark specified in A/110 is phase modulation of an entire TxID sequence, synchronized to the 8-VSB data fields, resulting in transmission of 1 bit of data per ATSC field and yielding a data rate of 41.3 bits/sec.

The new modulation parameters described in A/110A allow phase alternation of each 16-bit Kasami sequence, rather than of the entire TxID sequence. Since each TxID

sequence consists of four 16-bit Kasami sequences, the data rate for the new scheme is four times that of the previous standard; i.e., 165.2 bits/sec.

The BER performance of the new system, at a watermark injection level 33 dB below the DTV signal (again, having no impact to DTV reception), is still $1E-8$, or 7 days per error.

Another option is phase modulation of two Kasami sequences together. This would result in a data rate of $2 \times 41.3 = 82.6$ bits/sec, or 2 bits per ATSC field. The corresponding BER performance is 3 dB more robust than the 4-bits per field approach, and 3 dB less robust than the existing standard.

Further Information

A/110A, as with all other ATSC standards, recommended practices, and informational documents, are available for download at no charge from the ATSC Web site <<http://www.atsc.org>>

Three CES members receive 2006 IEEE Masaru Ibuka Consumer Electronics Technical Field Award. Two recipients also members of BTS

Three IEEE members are co-recipients of the 2006 IEEE Masaru Ibuka Consumer Electronics Award. The award is "For contributions to the development of the vestigial sideband (VSB) digital transmission system for digital television broadcasting".

The 2006 recipients are:

- **WAYNE BRETL** (M'IEEE) - R&D Manager, Zenith Electronics Corporation, Lincolnshire, IL He is a member of the IEEE Broadcast Technology, Circuits and Systems, Consumer Electronics, Communications and Signal Processing Societies and is located in Region 4. He is a member of the IEEE Northwestern Subsection.
- **RICHARD CITTA** (M'IEEE) - Chief Scientist, Micronas, Palatine, IL He is located in Region 4 and is a member of the IEEE Northwestern Subsection.
- **WAYNE LUPLOW** (F'IEEE) - Vice President, Zenith Electronics Cor-

poration, Lincolnshire, IL. He is a member of the IEEE Antennas and Propagation, Broadcast Technology, Circuits and Systems, Consumer Electronics and Signal Processing Societies and is located in Region 4. He is a member of the IEEE Northwestern Subsection.

The IEEE Broadcast Technology Society extends its heartiest congratulations to all three recipients of this prestigious IEEE Technical Field Award. We are especially proud to note that Wayne Bretl and Wayne Luplow are also members of the IEEE Broadcast Technology Society in addition to their CES and other Society memberships.

The IEEE Masaru Ibuka Consumer Electronics Award was established by the IEEE Board of Directors in 1987 to recognize outstanding contributions in the field of consumer electronics technology. It may be presented annually

to an individual or team of up to three.

The award is named in honor of Dr. Masaru Ibuka, Honorary Chairman and Co-Founder of Sony Corporation, whose innovative achievements and leadership in state of the art and have been an inspiration to several generations of electrical, electronics, and computer engineers.

In the evaluation process of potential award nominees, the following criteria are considered: technical innovation, creativity, quality, timeliness, societal benefit, technology enhancement associated with achievement(s), leadership and professional contributions of the individual(s) identifiable with the achievements, and the quality of the nomination.

The award, which is sponsored by Sony, consists of a bronze medal, certificate, and honorarium. The IEEE Consumer Electronics Society will present the awards and honor the recipients during 2006 at a CES event.

Activity Report: IEEE BTS Argentina Chapter

by Valentin Trainotti

Below is a summary of recent BTS Argentina Chapter technical meetings:

On 10 March 2005 at 6 :00 PM speakers Guillermo Chialvo and Pedro Maccarone provided a presentation on "IBOC Digital AM Radio Measurements Results" for the LS4 Continental AM 590 kHz 100kW and LR6 Mitre AM 790 kHz 50 kW equipment.

On June 8, 6:00 PM speakers Fabian A. Balliro and Osvaldo Moises Martini provided a presentation on "Digitalization of AM and FM Radio Stations".

On July 6, 6:00 PM speakers Fabian A. Balliro and Osvaldo Moises Martini gave a presentation on "Automation of TV Stations.

Each month the IEEE BTS Argentina Chapter Officers meet to plan future technical meeting topics and potential speakers. The Chapter Officers met on August 10 and have scheduled its next technical meeting for September 7 at which their ATSC expert Ing. Juan Carlos Guidobono will speak about the latest HDTV news and also bring equipment to demonstrate the HDTV signal.

Activity Report: IEEE BTS Chapter of Beijing Section

Prof. Zhixiang Xu



Chairman's platform at the First International Forum

The first International Forum of Digital TV & Wireless Multimedia Communication was held in Shanghai on Nov. 4-5, 2004. The IEEE BTS Chapter of the Beijing Section is one of the sponsors. Professor Zhixiang Xu was the Chairman of the International Forum. Dr. Yiyang Wu, who is the Principal Scientist of CRC, Canada, was invited to give the keynote speech to the forum. As part of his speech, Dr. Wu, representing the IEEE Broadcast Technology Society, extended the Society's congratulations to the Forum. Representatives of ISDB and ATSC also attended the Forum and gave presentations on recent advances in the DTV world.

The 2nd International Forum of Digital TV & Wireless Multimedia Communication will be held on Nov. 4-5, 2005, in Shanghai. The IEEE BTS Chapter is also one of the sponsors. Professor Xu, the Chapter Chairman, is the Chairman of the Program Committee.

The 2nd Forum of Digital TV & Wireless Multimedia Communication (IFTC) is an International Forum for the presentation of technological advances and market trends in the fields of digital television and wireless multimedia communication, as an important part of the annual Shanghai International Industry Fair (SIF). The 7th SIF, jointly organized by National Development and Reform Commission, Ministry of Science and Technology of the People's Republic of China, Ministry of Information Industry, Chinese Academy of Science and Shanghai Municipal Government, will



Dr. Wu and Professor Xu at the First International Forum

be held in November 2005 in Shanghai, China.

The hot topics of the 2nd IFTC include Digital TV, IPTV, Mobile Phone TV, Content & Security Management, and New Advances of Broadband Multimedia. In the next 3 years, the market for IPTV and Mobile Phone TV is poised for very rapid growth. Hundreds of major telecom/broadcasting companies worldwide have signaled their intent to deploy TV and entertainment services over their access networks. The 2nd IFTC brings together key experts and executives from all facets of the IPTV & Mobile Phone TV industries to provide the latest perspectives to help you hone your competitive edge.

The Forum program will include keynote and invited speakers, contributed papers; oral and poster sessions. The papers will be reviewed by both the technical committee members of the Forum and the peer reviewers of the Chinese Journal of Image and Graphics. The selected papers will be published in the 11th issue of the Chinese Journal of Image and Graphics as regular papers. Other accepted papers, together with the keynote speeches, will be published in the proceedings of the Forum. The Authors should prepare their manuscripts using the MS Word template and the format requirements of the Chinese Journal of Image and Graphics provided in the conference website. Authors are requested to submit an MS Word version of their papers with no more than four pages per paper through email-based submissions. Please see the conference website (www.siga.com.cn/iftc2005) for details.

Activity Report: IEEE BTS New York City Chapter

By Warner Johnston

Warner Johnston, appointed chair of the New York City chapter of IEEE Broadcast Technology Society, will be presenting a pair of tutorials on Closed Captioning on Sept. 13 and Nov. 15 at 6:30 PM. Mr. Johnston is currently chair of CEA R4.3 WG 8, which is the Consumer Electronics Association (CEA) standards body responsible for CEA-608 the ANSI standard on NTSC Closed Captioning. He is a member of CEA R4.3 WG 1, which handles the ATSC closed captioning standard CEA 708. He has been in broadcasting for more than 30 years and has been involved in Closed Captioning since the mid 1970s. For the last 12 years he has represented ABC-TV at Standards Bodies involved in Closed Captioning. While the NTSC standard will in theory be going out of use in the next few

years, because the ATSC standard includes a method for carriage of NTSC captions, it will likely remain important for years past the end of NTSC transmission. While the ATSC document deals only with captions and is being partitioned so that it only deals with the receiver portion of the existing specification (SMPTE and ATSC are in a similar and co-ordinated fashion partitioning their documents on Captioning), in the NTSC universe Captioning includes not only captions, but text displays, URL carriage, and information on the show rating, or TV Parental Guidelines. A brief look at CEA 766, the document concerning TV Parental Guidelines for ATSC will be included as part of the tutorial. While the standards under discussion are not IEEE documents, they are concerned with an area of

broadcasting which is not well known and allows an increase in potential audience of 10% or more.

As all good broadcasters know time and place are subject to change depending on breaking news and unexpected job shifts. At this time the location the Chapter meeting and tutorials will be at ABC-TV 47 West 66th St. New York, NY. If interested in attending, you must RSVP to either wwjohnston@ieee.org or to warner.w.johnston@abc.com. You need to make an advance registration due to limited seating, for security reasons and because, if there is a change, Warner Johnston needs to be able to contact you. His phone is 212 456 2547. However this is not as reliable as e-mail. Details will be posted in the near future at www.atsc.ws. Note: that this is not the web site of ATSC, which is www.atsc.org.

Activity Report: IEEE BTS Spain Chapter

by Pablo Angueira

Recently, a group of professionals working in the broadcast technology related industries and academia have formed a new Spain Chapter of the IEEE Broadcast Society.

The relevant industry participation in the Spain BTS Chapter has among its members engineers from network operators in Spain (Abertis Group), radio and television transmitter manufacturers (BTSA), plus test and measurement equipment (Tektronix).

The academic research being conducted in the broadcasting field is characterized by a wide group of the BTS Spain

Chapter members representing the most relevant telecommunications engineering universities in Spain. Members include Associate and Full Professors from engineering faculties in Madrid (UPM), Barcelona (UPC), Vigo (UVIGO) and Bilbao (UPV/EHU). All the academia members are deeply involved in broadcast research and development activities. Their results have been published in the IEEE Transactions on Broadcasting and in other IEEE periodicals.

After the Spain BTS Chapter completes its set-up, it will begin regular meetings within the next few months.

The Spain BTS Chapter will extend invitations to other IEEE members working in the Spain broadcast industry and research centers to take part in the Chapter activities by attending its meetings to share technical information and hear or give presentations on new developments. In addition the attendees will be informed about opportunities to take part in the Chapter administration including development of program activities that serve the particular educational needs of their professional colleagues working in the broadcast engineering field.

Activity Report: IEEE BTS St. Petersburg, Russia Chapter

by Dmitry Tkachenko

The IEEE BTS St. Petersburg Chapter has made arrangements with the IEEE Consumer Electronics Society to hold The Tenth IEEE International Symposium on Consumer Electronics (ISCE2006) in St. Petersburg. The St. Petersburg Chapter is a joint Chapter with Consumer Electronics and Communications Societies. Due to active work of Professor Konstantin Glasman who is appointed as the General Chair of ISCE2006, this Symposium is going to be held in St.

Petersburg. Professor Glasman visited the ISCE2004 Symposium in Reading (UK) and ISCE2005 Symposium in Macau and has made all necessary preliminary arrangements with the IEEE CE Society.

Please see the attached page with a call for papers for the ISCE2006 event. The scope of the symposium includes several topics that are of interest to BTS members. BTS members are invited to submit abstracts in response to this call for papers.

Additionally, this event may be a good opportunity for BTS society members to visit St. Petersburg especially taking into account that it is going to be held at the end of June - the top of the tourist season in St. Petersburg when you may see White Nights here (i.e. almost no darkness in the night).

For more information visit the ISCE2006 site at <http://isce2006.gukit.ru>.

Note: See the next page with the Call for Papers announcement

Activity Report: IEEE BTS Taipei Chapter

by Ying Li

A seminar was held on March 23, 2005 at Yuan Ze University (YZU), Chungli, Taoyuan, Taiwan. The speaker was C. C. Jay Kuo (Professor, University of Southern California, IEEE Fellow, <http://viola.usc.edu/>). The seminar, titled "Ubiquitous Monitoring via Sensor Networks—Applications, Technologies and Systems", provided a tutorial of the recently emerging hot topic (i.e. Wireless Sensor Network) and was attended by more than 100 participants. Approximately eighty percent of the attendees were students, and the rest were researchers and engineers including YZU faculty members from communications engineering, electrical engineering, mechanical engineering and computer science departments and BT members from the industries. Given Professor Kuo's kind permission the seminar was digitally recorded.

All the wireless communications devices can be viewed as broadcasting stations that differ in power, range, signal



The speaker, Professor C. C. Jay Kuo, during the seminar.

formats etc, with the addition of receiving ability. Wireless sensors are miniature low cost broadcasting/receiving stations that can be used in large numbers to monitor and measure the physical world for data gathering, query processing and environment monitoring. It is important to coordinate these densely located broadcasting/receiving stations forming a network so that information can be transmitted in an efficient way to preserve power and bandwidth. The general field is called wireless sensor networks (WSN). Several potential applications of WSN were introduced, such as military surveillance, structural monitoring, habitat monitoring, patient monitoring, etc. Research on WSN has grown quickly over the last five years. It is a highly inter-disciplinary field since it involves communications networking techniques from the application layer (e.g. data/signal processing, distributed algorithms), the network layer (e.g. distributed protocols, routing), the physical layer

continued on page 13



Attendees of the Seminar on Wireless Sensor Network.



June 29 – July 1, 2006
St.Petersburg, Russia



SCHEDULE

Extended Abstract Due:

January 30, 2006

Notification of Acceptance:

February 27, 2006

Camera-Ready Paper:

April 3, 2006

Symposium:

June 29 – July 1, 2006



The Tenth IEEE International Symposium on Consumer Electronics (ISCE 2006)

CALL FOR PAPERS (ISCE 2006)

The International Symposium on Consumer Electronics (ISCE 2006) will bring together top technical professionals from the consumer electronics industry and academia. ISCE 2006 will provide a forum for researchers, system developers, and service providers to share ideas, designs, and experiences on the emerging technology. Papers reporting new developments in all areas of consumer electronics are invited, including but not limited to those listed below.

SCOPE

1. Automotive and Home Electronics
2. Mobile Computing & Communication
3. Internet Applications
4. Multimedia
5. Video Technology
6. Audio Technology
7. Communications
8. RF & Wireless
9. User and Human Interfaces
10. Security & Rights Management
11. Other New Emerging Technologies

ISCE 2006, the tenth in the series, will be held in St.Petersburg. The city of St.Petersburg is the Northern capital of Russia, its cultural, historical and architectural center. There are 675 large and medium-scale industrial enterprises, 93 institutions of higher education and 114 institutions of additional education, over 250 museums, over 80 theaters, about 1800 libraries. St. Petersburg has been actively restoring its former role of the wide-open "gateway" of Russia on the outer world.

The city of St.Petersburg is often referred to as The Palmyra of the North, The Babylon of the Snows, The Window on the West, and an Open-Air Museum. St.Petersburg is known as the City of White Nights and Bridges. You can find English, Italian and Egypt bridges; bridges decorated with towers, lions, horses and even magic animals - griffins; there are Post, Theatre, and even Kissing bridge. With moving ISCE 2006 to the end of June, why not see St.Petersburg drawbridges in White Nights!

General Chair

Konstantin Glasman

St.Petersburg University of Film
and Television

URL: <http://www.isce2006.ru> , <http://isce2006.gukit.ru>

E-mail: info@isce2006.ru , isce2006@gukit.ru

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(e.g. sensor design and manufacturing, wireless communication), and other issues such as antenna arrangements, mechanical structure, etc. One critical issue to be addressed is power management. It is expected to be one of the very fast growing fields in the next decade in both academic and industrial sectors. This talk provided a broad view of recent developments in WSN and pointed out interesting research problems. Some new research results conducted at the University of Southern California (USC) were also mentioned.

This seminar was hosted by the IEEE BT society Taipei Chapter, Yuan Ze University's Communications Engineering Department, and the China Radio Association. A discussion and a luncheon were held before and after the seminar, respectively, providing opportunities for the attending researchers/engineers to interact with the speaker.

A coming event this Fall will be the speech by Mr. C. T. Chang on the history of broadcasting technology in Taiwan over the past 50 years. Mr. Chang founded the IEEE BT Taipei chapter, was the chairman of China Radio Association



Pre-seminar discussion. From the left: H. T. Chou, S.T. Peng (IEEE Fellow), C.C. Jay Kuo (speaker, IEEE Fellow), Y. Li, J. Mar (Chairman of the Comm. Eng. Department, YZU), Y.S. Chen, C.C. Lee, J. R. Yang, Y.G. Chau, S. J. Chang, J. K. Hwang.

tion (<http://www.cra.org.tw/BV50CRA/En/En-Main.aspx>) and the Chief Engineer of Central Radio Station in Taipei.

More information of Professor Kuo's seminar can be found at: <http://www.comm.yzu.edu.tw/board/WSN%20Talk.pdf>.

BTS at BroadcastAsia2005

Yiyan Wu, BTS Transactions Editor-in-Chief, Tyler Cheng, BTS Taipei Chapter, and Xuan Jing, a graduate student from Nanyang University, Singapore staffed a BTS information membership promotion booth at BroadcastAsia2005 exhibition and conference from 14 – 17 June, in Singapore. This event had 708 exhibiting companies from 41 countries/regions and 9,621 trade visitors from 58 countries. A steady stream of attendees visited the BTS booth during the three-day event.

Over 300 people who met with the BTS representatives requested information materials describing the professional support services provided by the IEEE and the BTS.

More than 430 participants from 29 countries attended the BroadcastAsia2005 International Conference. This event covered topics and trends which included content delivery, cinema, mobile broadcasting, digital radio, digital TV and media asset management. Of particular interest to the

BTS was a Conference session on Portable and Hand-held devices (DVB-H, T-DMB, and S-DMB. Korea demonstrated T-DMB and S-DMB to cell phones.

The IEEE Broadcast Technology Society wishes to thank Yiyan Wu, Tyler Cheng, and Xuan Jing for volunteering their valuable time to staff the BTS booth at BroadcastAsia2005 and for meeting with the attendees interested in learning about the IEEE and the BTS services to its members.

Call for Proposals – Speaking at NAB2006

NAB is now seeking speakers for conferences and panel sessions at NAB2006, the world's largest media show April 22 - 27, 2006 in Las Vegas.

High-level technology speakers will keynote and participate in panel sessions at NAB2006 addressing the future for media-related technologies. Speakers will have the opportunity to express their opinions concerning the opportunities and challenges of the new media age.

"The NAB Show is home to everyone interested in the latest digital media technologies and how these

technologies will impact future business strategies," said John Marino, NAB vice president, science and technology. "We welcome high-level speakers who are visionaries with a track record of leadership and who are willing to share their experiences with our attendees."

In addition, presenters are being sought for the 60th annual NAB Broadcast Engineering Conference also held at NAB2006. This world-class conference addresses the most recent developments in broadcast technology and focuses on the opportunities and chal-

lenges that face broadcast engineering professionals around the world.

Presenters will deliver technical papers ranging over a variety of topics relevant to the broadcast and allied industries.

Proposals must be submitted by October 7, 2005. For more information on relevant topics and the submission form, go to www.nabshow.com/speakers_default.asp.

If you have further questions, please call John Marino at (202) 429-5338 or email John at jmarino@nab.org.

55th Annual IEEE Broadcast Symposium – 2005 at The Hotel Washington, Washington, DC

Technical Program

Wednesday Morning, October 12

Welcome and Opening Remarks: Guy Bouchard, Canadian Broadcasting Corporation Chair, 2005 Broadcast Symposium
Mobile & Multimedia Broadcasting I
Session Chair: Thomas M. Gurley, BTS President

- 1) The Emergence of Digital Video Broadcast TV in Mobile Terminals: DVB-H
Don Shaver, Texas Instruments – Dallas, Texas
- 2) Using Broadcast Standards for Handheld Devices: A DVB-H System Architecture
Brett Jenkins, Thales Broadcast & Multimedia – Southwick, Massachusetts
- 3) DVB-H Field Trials & Implementation Plans
Michael Schueppert, Crown Castle Mobile Media – Houston, Texas
- 4) MediaFLO Technology & Implementation
Omar Javaid, Qualcomm – San Diego, California

Wednesday Afternoon, October 12

Mobile & Multimedia Broadcasting II
Session Chair: Thomas M. Gurley, BTS President

- 1) WRAL-TV's WAN Service & Cell Phone News Channel Feed
Sam Matheny, Capitol Broadcasting – Raleigh, North Carolina
- 2) An ATSC Broadband Multimedia Datacasting System: Implementation and Tests
Gilles Gagnon, Communications Research Centre - Ottawa, Canada
- 3) Mobile Reception Performance with 4-Branch Space Diversity for ISDB-T
Maashiro Okano; NHK - Tokyo, Japan
- 4) Terrestrial Digital Multimedia Broadcasting (T-DMB): Technologies & Services
Ji Hung Cha; Electronics and Telecommunications Research Institute (ETRI), Korea
- 5) Satellite Based Multimedia Broadcasting System
Shigekazu Hori; Toshiba, Japan

Wednesday Evening, October 12

Technical Regulatory Issues

Session Chair: William Meintel, Meintel, Sgrignoli, & Wallace – Chantilly, Virginia

- 1) An Overview of the Goals of the IEEE 802.22 Standard

- Carl Stephenson, WK3C Wireless, Emmaus, Pennsylvania
- 2) Mitigating the Effects of Unlicensed Devices on Wireless Microphones
Edgar Reihl; Shure, Niles, Illinois
 - 3) D- ENG
Andy Bater; Tribune Broadcasting - Chicago, Illinois
 - 4) Hardware Considerations for Low Power DTV Systems
Greg Best; Greg Best Consulting - Kansas City, Missouri

Thursday Morning, October 13

Audio Broadcasting

Session Chair: George Harris, RF Systems, Inc.

- 1) Bitrate-Efficient and Compatible Multi-Channel Audio Broadcasting Using MPEG Spatial Audio Coding Technology
Albert Heuberger, Fraunhofer IIS - Erlangen, Germany
- 2) Time Variation of the Received Field Strength in Different Environments for Digital Radio Systems (DRM) in the Medium Wave Band
Pablo Angueira, University of the Basque Country – Bilbao, Spain
- 3) A New Low-Profile Medium-Wave Antenna
Tom King, Kintronic Labs - Bristol, Tennessee
- 4) On the Cross Field Antenna (CFA) Performance
Valentin Trainotti, University of Argentina, Buenos Aires, Argentina
- 5) Common Amplification Transmitter for FM/IBOC Signal
Dan Dickey, Continental Electronics - Dallas, Texas

Joint IEEE/BTS and AFCCE Luncheon

Speaker: Marsha MacBride, National Association of Broadcasters

Thursday Afternoon, October 13

DTV System Performance & Measurements

Session Chair: Eric Wandel, Research Associates of Syracuse, Syracuse, New York

- 1) DTV Systems Performance Analysis – The Canadian Experience
Ray Carnovale, Canadian Broadcasting Corporation - Montreal, Canada
- 2) Comparative Evaluation Tests on Terrestrial Digital TV Systems
Gunnar Bedicks, Jr., Mackenzie Presbyterian University - San Paulo, Brazil
- 3) Power Handling Comparisons for Television Mask Filters

- Dan Fallon, Electronics Research Inc. - Gray, Maine
- 4) 8-VSB DTV Transmitter FCC Emission Mask Compliance Measurement Standard
Greg Best, Greg Best Consulting - Kansas City, Missouri
 - 5) A Tutorial on DTV Measurements: What, How, and Why?
Gary Sgrignoli; Meintel, Sgrignoli, & Wallace - Mount Prospect, Illinois

Friday Morning, October 14

Satellite Broadcasting

Session Chair: Greg Best; Greg Best Consulting, Inc.

- 1) DVB-S2: Optimal Power and Bandwidth Efficiency for Satellite Transmission
Raymond Pieck, Newtec America, Inc. - Stamford, Connecticut
- 2) Design of Communication Payload for the Broadband Services in a Hybrid Satellite
Junghwan Kim; University of Toledo – Toledo, Ohio
- 3) Delivering HD at the Lowest Bit Rates Using AVC
Rob Robinett, Modulus Video - Sunnyvale, California
- 4) An Indoor Position Location System Using Transmitter Identification RF Watermark
Yiyang Wu; Communications Research Centre - Ottawa, Canada

IEEE/BTS Awards Luncheon

Friday Afternoon, October 14

Distributed DTV Transmission

Session Chair: William T. Hayes, Iowa Public Television – Johnston, Iowa

- 1) Adjacent Channel Operation of Distributed Transmission Networks
Merrill Weiss, Merrill Weiss Group - Metuchen, New Jersey
- 2) Hardware Considerations for DTx versus Single Site Transmission
David Neff, Axcera - Lawrence, Pennsylvania
- 3) Areas of Co-channel Interference and Multipath Created by 8-VSB Modulated - Distributed Transmitters in Flat Terrain
Oded Bendov, TV Transmission Antenna Group, Cherry Hill, NJ
- 4) Testing DTx Systems in Chicago
Andy Bater, Tribune Broadcasting - Chicago, Illinois
- 5) Panel Discussion on DTx Transmission Systems
Participants: Merrill Weiss, David Neff, Oded Bendov, Andy Bater

IEEE Broadcast Technology Society Organization

IEEE Broadcast Technology Society Administrative Committee

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		Nass, E. Lanny Viacom Inc. Suite 725, 2000 K Street, NW Washington, DC 20006 tel: 202-457-4602 elnass@cbs.com		

Congratulations to the three BTS Members who were recently elevated to Senior Member Level!

Sudhakara R. Kolli Carolyn E. Schaff Naftali Sommer

IEEE Senior Members are honored members of the IEEE organization. We hope you'll consider joining the ranks of Senior Members. IEEE Bylaw I-105.3 sets forth the criteria for elevation to Senior Member Grade, as follows:

"... a candidate shall be an engineer, scientist, educator, technical executive or originator in IEEE-designated fields. The candidate shall have been in professional practice for at least ten years and shall have shown significant performance over a period of at least five of those years."

When you become a Senior Member, you will receive a bronze and wood plaque, a letter to your employer (upon request), \$25 towards a new Society Membership, the recognition of your peers, and the opportunity to become an executive IEEE volunteer. Visit <http://www.ieee.org/seniormember> for more information. If you would like to become a Senior Member and need some help, please contact your Section Chair, or a.monroe@ieee.org



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**The 55th Annual
IEEE Broadcast
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**12-14 October, 2005
Hotel Washington
Washington DC, USA**

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www.ieee.org/bts**

Sessions to include:
Mobile & Multimedia Broadcasting
Technical Regulatory Issues
Audio Broadcasting
DTV: System Performance
Measurements
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