

## Standards Update

David Q. McDowell, Editor

This issue of Standards Update is a smorgasbord of items, that all seem to me to be important. They are drawn from a variety of different imaging standards activities, which all met this fall. In no particular order or priority they are:

### Invitation to Participate in CIE Gamut Mapping Study

The following has been received from Jan Morovic (jan.morovic@hp.com) chairman of CIE TC8-03, *Gamut Mapping*, with the request that it be distributed to the larger imaging community.

“An essential part of cross-media color image reproduction is to deal with the differences between media in terms of their color gamuts. As a result the CIE has set up a technical committee (TC8-03) on Gamut Mapping and given it the task of recommending a baseline gamut mapping solution. However, as existing published work on gamut mapping is very heterogeneous it was recognized that it is important to collect a substantial set of experimental gamut mapping evaluation results obtained in a coordinated way.

Hence TC8-03 has prepared a set of Guidelines for the Evaluation of Gamut Mapping Algorithms (see [www.colour.org/tc8-03/guidelines.html](http://www.colour.org/tc8-03/guidelines.html)) and would like to announce their forthcoming publication as a CIE technical report (CIE 156:2003).

Furthermore we would like to invite you to conduct experimental evaluations of gamut mapping algorithms on the basis of the Guidelines and thereby help us to make a well-founded recommendation for a baseline gamut-mapping algorithm. If you decide to participate in this coordinated research, please inform us of your intent at [www.colour.org/tc8-03](http://www.colour.org/tc8-03) and submit a report on the status of your experimental work to us by September 2004. Also, if you would like others to evaluate some specific gamut mapping algorithms, we would like to encourage you to submit detailed descriptions, pseudo-code or actual code in languages like

C or Matlab to this TC so that we can make this available through our website. Finally, please, do not hesitate to contact us if you have any questions about this effort.

Being involved in the definition of a baseline solution for a key part of color reproduction is a great opportunity and we wholeheartedly encourage you to participate in this coordinated research.”

### New Colour Appearance Model CIECAM02

CIE TC8-01, *Colour appearance modeling for colour management systems*, under the leadership of Nathan Moroney, has completed its technical report titled *A Colour Appearance Model for Colour Management Systems: CIECAM02*.

This report is expected to be available very shortly from the CIE at [www.cie.co.at](http://www.cie.co.at). The following overview is extracted from the introduction.

“This document provides revisions to the CIE interim colour appearance model, CIECAM97s. It also provides the forward and inverse equations for this revised model, referred to as CIECAM02.

Relevant terminology is presented and the evolution and development of the model are presented. The specific revisions are described and some guidelines and examples for setting the model parameters are presented. Finally, the forward and inverse equations are provided with a worked example.

The objective of this document is to provide a single set of revisions to the CIECAM97s colour appearance model. It also provides additional information regarding the derivation and use of this model for practical applications. This document should provide the necessary level of detail for specific implementations of the forward and inverse colour appearance model as appropriate.

Colour appearance models are a large area of research in the field of colour science. There is a need however for a single colour appearance model for colour management systems. This model should balance complexity and functionality. One of the strengths of CIECAM97s is that it has provided a common benchmark

for researchers to compare results and focus recommendations for improvements and refinements.”

### ISO Joint Working Group formed for ICC Profile Specification

TC130/JWG7, Colour Management, held its inaugural meeting on November 4th in conjunction with the ICC Meeting and the Color Imaging Conference in Scottsdale, AZ.

JWG7 was created by TC130 to implement the contractual agreement between ISO and the ICC which enables the ICC to actively participate in, and share responsibility for, the movement of the ICC Profile Specification into an ISO Standard. This standard will be known as ISO 15076, *Image Technology — ICC Colour Management — Architecture, profile format, and data structure*.

At the present time the JWG is composed of representatives of the ICC, TC130 (Graphic technology), TC42 (Photography), and CIE Division 8 (Image Technology). George Pawle of Eastman Kodak, and a former chair of the ICC, was appointed Convenor of the JWG.

Administrative support is provided by NPES The Association for Suppliers of Printing, Publishing and Converting Technologies. NPES also provides administrative support for both the ICC and TC130/WG2 which are directly involved in the work of JWG7.

Current plans are that a WD of the standard will be circulated by the end of December for a six-week expert review. All proposals under review at the ICC, that have been approved by the time of circulation of the WD will be incorporated. The comments will be reviewed at the next meeting of the JWG and a decision will be made as to whether the draft is put forward as a CD or a DIS.

The next meeting of the JWG will be February 21, 2004 in conjunction with the ICC meeting in Miami, FL.

### ISO/TC171 Name and Scope Change

The title of ISO TC171 has recently been changed from *Document imaging applications* to *Document management applications* to better reflect the work being done in TC171.

At the same time the scope of TC171 has been revised to be.

“Standardization of quality control and integrity maintenance in the field of document management. Documents may be managed in micrographic or electronic form. This includes:

- \* processes involving capture, indexing, storage, retrieval, distribution and communication, presentation, migration, exchange, preservation and disposal;
- \* input/output quality of documents (micrographic or electronic);
- \* implementation, inspection and quality control procedures for storage, use and preservation of documents (micrographic or electronic), including supportive metadata;
- \* applications involving workflow (process management) in an enterprise and on the Internet;
- \* maintenance of quality and integrity during information exchange between systems;
- \* procedures and processes supporting legal admissibility and/or integrity and security;
- \* management of related audit trail information.

Excluded:

- \* records management policies and procedures within the scope of TC 46;
- \* all work on information, process and production definitions and workflow of industrial automation systems within the scope of TC 184;
- \* cinematography, dimensions and labelling of raw-stock film, and the methods within the scope of ISO/TC 42 dealing with testing, rating, classifying and specifying the performance characteristics of processes, materials and devices applicable to photography;
- \* work being done by ISO/IEC JTC1 that is within its scope and in particular work of ISO/IEC JTC 1/SC 23, SC 24, SC 27, SC 28, SC 29, SC 32 and SC 34.

NOTE: Where potential or actual overlap with other TCs exists JWGs will be actively pursued.”

### ISO Joint Working Group formed to Create PDF/A Standard

Earlier this year ISO/TC171 (Document and imaging applications) initiated a NWI (new work item) to create a standard defining the use of PDF for the long term preservation of docu-

ments in digital form. This work item was approved and the inaugural meeting of the joint working group created to pursue this work (TC171/SC2/WG5) was held in New Orleans on October 21-22, 2003.

The title of the JWG is *Document management applications — Application Issues — PDF/A*. It currently consists of participants from TC171/SC2, TC42 (Photography), TC130 (Graphic technology), and TC46/SC11 (Information and documentation - Archives/records management). The JWG Convener is Stephen Levenson of the United States.

Under the guidance of the document editor, Stephen Abrams, the JWG reviewed the comments received on the draft document that accompanied the NWI ballot as well as comments received from delegates to the meeting and a preliminary CD draft was created. This draft was circulated to the members of the JWG for comment and then placed in ISO CD ballot as ISO 19005, *Document management — Electronic document file format for long term preservation — Part 1: Use of PDF (PDF/A)*.

The scope of the document is “*This International Standard specifies how to use the Portable Document Format (PDF) for long-term preservation of electronic documents. It is applicable to documents containing combinations of character, raster, and vector data. This International Standard does not address the following:*

- Methods of capture or conversion
- Rendering issues related to physical devices
- Specific physical methods of storing these documents such as the media and storage conditions, required computer hardware, and/or operating systems.”

This CD ballot closes February 26, 2004 and anyone interested is urged to get in touch with their national body representative of any of the involved ISO committees to review and comment on the document. For those in the United States, the key contact is Betsy Fanning (bfanning@ aiim.org).

### Notes from TC130 (Graphic technology) meeting in Kyoto, Japan, Oct 2003

All working groups of TC130 met in Kyoto, Japan October 6-11. Some

key activities of interest to the imaging community are:

**Characterization target TC130** has approved the development of an additional part of ISO 12642. Part 2 will be a new CMYK characterization target data set that includes the contents of the current ECI characterization target as well as the data elements proposed by the CGATS sub-committee concerned with the needs of the packaging industry. It is expected that a total of 1610 data elements will be included.

The current thinking is that this data set will not replace the current data set (ISO 12642, more commonly known as IT8.7/3) but provide a larger more detailed alternative. All the combinations of CMYK values of the IT8.7/3 data set are included in the proposed new data set so that the smaller target can be derived from the larger one.

Drafts are in preparation or ballot in both CGATS (as IT8.7/4) and ISO TC130 (as ISO 12642-2).

**Color Data Exchange Format TC130/WG2** is preparing a WD of ISO 17972, *Graphic technology — Prepress data exchange — Colour data exchange format*. The goal of this standard is to develop an XML based file format, and associated document type definition (DTD) and schema, which will enable the unambiguous exchange of information about the colour characteristics of reflection or transmission materials used in the graphic arts industry

This standard is expected to incorporate many of the elements included in the GretagMacbeth CxF format and in CGATS.17, *Graphic technology — Exchange format for spectral measurement, colorimetric, and densitometric data in electronic form*.

This work would impact the reporting and distribution of characterization data associated with both input and output characterization targets (e.g., ISO 12641 and ISO 12642 better known as IT8.7/1, IT8.7/2 and IT8.7/3) and associated measurement data.

**Revision of ISO 13655** A new work item has been approved to revise ISO 13655, *Graphic technology — Spectral measurement and colorimetric computation for graphic arts images*.

The current version of this standard only recommends the use of black backing to insure compatibility with the ISO 5 series of densitometry stan-

dards. This has created problems for the color management community where data used for creation of color management profiles is believed to provide better results if measured over a white or self backing material.

The goal of this revision is to provide a recommendation that will insure consistent selection and reporting of the backing used in such measurements.

**JBIG2-AMD2 Compressed Data** It was agreed to prepare a NWI for an amendment (probably as an informative annex) to ISO 12639 relating to the use of JBIG2-AMD2 Compressed Data as part of the TIFF/IT workflow.

This NWI should contain the final proposed text so that the NWI ballot can also include approval as a CD for registration as a DIS. Response to the NWI will determine the level of interest in this activity.

#### **PDF/X 2003 Revisions Completed**

The PDF/X 2003 series of data exchange standards have been completed and are available from ISO. These include the first publication of PDF/X-2 and the updating of PDF/X-1a and PDF/X-3 to Adobe PDF Version 1.4.

A slight restructuring of the documents was required during final editing to allow these documents to normatively point to both the current and immediately previous compliance levels.

The current document series is: *Graphic technology — Prepress digital data exchange using PDF*

- *Part 1: Complete exchange using CMYK (PDF/X 1 and PDF/X 1a);*
- *Part 3: Complete exchange suitable for colour-managed workflows (PDF/X 3);*
- *Part 4: Complete exchange of CMYK and spot colour printing data using PDF 1.4 (PDF/X-1a);*
- *Part 5: Partial exchange of printing data using PDF 1.4 (PDF/X-2);*
- *Part 6: Complete exchange of printing data suitable for colour-managed workflows using PDF 1.4 (PDF/X-3).*

**ISO 15790 Graphic technology and photography — Certified reference materials — Documentation and procedures for use, including deter-**

**mination of combined standard uncertainty** has been completed and published by ISO.

This standard is available from ISO ([www.iso.org](http://www.iso.org)) and/or national standards bodies that make ISO standards available on a national basis.

#### **Notes from TC42 (Photography) meetings in Toyko, Japan, Oct 2003**

Working groups 18, 20, 22, and 23 of TC42 met in Tokyo, Japan, October 14-17. As a result of these meetings several documents are in ballot that directly impact the imaging community. The titles of these documents also serve to indicate the breadth of the work being conducted within TC42. Those interested in reviewing and commenting on any of the following are urged to contact the TC42 Secretariat ([isotc42@i3a.org](mailto:isotc42@i3a.org)) or your national standards body.

- **ISO/DIS 10505** *Root mean square granularity* Ballot closes 2004-02-02
- **ISO/DIS 12232** *Photography — Digital still cameras — Determination of exposure index, ISO speed ratings, standard output sensitivity and recommended exposure index* This document is in final committee review and will be in DIS ballot shortly.
- **ISO/DIS 15740** *Photography — Electronic still picture imaging — Picture Transfer Protocol (PTP) for Digital Still Photography Devices* Ballot closes 2004-03-02 (It was noted during the meetings in Toyko that all consumer cameras from Kodak, HP, Nikon, Sony, and Canon are PTP enabled.)
- **ISO/DIS 16067-2** *Electronic scanners for photographic images — Spatial resolution measurements — Part 2: Film scanners* Ballot closes 2004-01-25
- **ISO/CD 17321-1** *Graphic technology and photography — Colour characterisation of digital still cameras (DSCs) — Part 1: Stimuli, metrology, and test procedures* Ballot closes 2004-1-16
- **ISO/DIS 20462-1** *Photography — Psychophysical experimental method to estimate image quality — Part 1: Overview of psychophysical elements* Ballot closes 2004-3-15

- **ISO/DIS 20462-2** *Photography — Psychophysical experimental method to estimate image quality — Part 2: Triplet comparison method* Ballot closes 2004-3-15
  - **ISO/DIS 20462-3** *Photography — Psychophysical experimental method to estimate image quality — Part 3: Quality ruler method* Ballot closes 2004-3-15
  - **ISO/DIS 21550** *Electronic scanners for photographic images — Dynamic range measurements* Ballot closes 2004-01-25
- TC42 Documents Published** TC42 has announced the recent publication of the following documents.
- **ISO 2240:2003** *Photography — Colour reversal camera films — Determination of ISO speed*
  - **ISO 16067-1: 2003** *Photography Spatial resolution measurements of electronic scanners for photographic images — Part 1: Scanners for reflective media*

#### **Report from SCIT Meeting in Geneva Switzerland, Nov 2003.**

The Steering Committee for Image Technology met in Geneva November 6-7, 2003. Some of the key resolutions from this meeting are as follows.

**ISO SCIT Chair** The ISO SCIT recommends the establishment of Co-Chair positions to lead the SCIT and recommends Mr. David McDowell (ISO TC130) and Mr. Michael Nier (ISO TC42) to serve as co-Chairs for the 3 year term to begin at the September 2004 meeting of the SCIT.

**Extension of the ISO SCIT Vice-Chair** The ISO SCIT recommends the continuation of the Vice-Chair position to support the SCIT management, and recommends Mr. J. Thomas Schmelzer (JTC1/SC28) extend his term as the SCIT Vice-Chair for another 3-years to begin at the September 2004 meeting.

**Recommendation to ISO Central Secretariat on PDF/A.** The ISO SCIT recommends the ISO Central Secretariat Production Staff monitor the work of ISO TC171/SC2 Working Group 5 in the development of ISO 19005 (PDF/A) because of the potential applicability of the future proposed standard to ISO publications.

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## New Products

*Edited by William M. Aitken*

The information, which follows, was gleaned from news releases and company information provided at the web sites [www.PrintonDemand.com](http://www.PrintonDemand.com) and [www.HotNewProducts.com](http://www.HotNewProducts.com).

### PRINTING and PRINTERS

**PhotoSciences, Inc.** is offering a lithographic service to transfer digital graphics images to substrates including borosilicate, quartz, soda lime, beryllium copper and the like. The process is similar to semiconductor lithography and can accurately reproduce sub micron geometries in a variety of coatings on substrates. Applications include diffractive laser optics, theatre projection systems, text archiving and electronic circuitry. More info from Patrick Decatrel ([PatrickD@Photo-Sciences.com](mailto:PatrickD@Photo-Sciences.com)) or 310-784-3642 fax, 310-634-1537 phone.

**Pantone, Inc.** has launched the **ColorVantage System for Ink Jet Printers** to bring professional quality color reproduction to the consumer ink jet market. A system of pigment based inks, specialty papers and specially developed color profiles results in color accurate, durable prints. The system is available now for Epson and Epson compatible printers including Mimaki, Ricoh, and Roland. Additional printers will be added in the future. A ColorVantage starter kit with all ink cartridges and a CD with all color profiles and an easy to print Pantone Color Chart is available at an SRP of from \$48-\$605 depending on the printer model. Replacement cartridges range from \$21 to \$100. More info at [www.pantoneinkjet.com](http://www.pantoneinkjet.com).

**Konica Minolta** is offering new print controller software to make e-mailing directly from their printer-copiers easy. Aimed at business document distribution needs, the **Pi4700e** print controller uses the Light Direct Access Protocol (LDAP) to simplify scan to e-mail and new network TWAIN to scan to hard disk drive. Existing Pi4700e controllers may be updated with free Phase 2 updates from the company.

Konica Minolta also announced further flexibility added to their **DiAlta Color CF5001** high volume color printer aimed at commercial printers, print shops and in-house graphics design. The printer offers a complete line of finishing operations for the 50ppm printer including booklet manufacture, folding, handling of oversized and thick stocks and prints at 600x600dpi with 256 gradations/color/pixel. The printer maintains color reproduction accuracy with an auto calibration at startup and every 1000 copies thereafter. Suited for applications up to 150k impressions/month, the CF5001 SRP is \$35,900 and the Fiery S300 50C-K Controller is listed at \$23,000. More product and service info at [konicaminolta.us](http://konicaminolta.us).

**Lexmark** introduced the **X752e and X912e Multifunction** (Scan/Copy/Print/Fax) directed at Fortune 1000 company demands for workplace color. The **5500MFP** wide format scanner option provides an affordable path to add the MFP function to existing C912/910 printers. The print controller includes and e-task interface which can be customized to a particular business' document distribution needs. The 912e offers 28ppm print and copy with stock up to A3 or 11"x17" at an SRP of \$11,499. The 752e offers print/copy functions at 20ppm at an SRP of \$7699. The 5500MFP option has an SRP of \$4999. More info at [www.lexmark.com/us/solutions/business](http://www.lexmark.com/us/solutions/business).

**CREO Scanning Solutions** includes the **IQsmart™ Scanners** for both Mac and Windows platforms. With XY stitch scanning technology from CREO they claim superior quality enlarged images from 35mm negatives or 8x10 chromes. The IQsmart3 offers 10,000dpi (true optical resolution of 5500 dpi edge to edge) while the IQsmart2 boasts 8200dpi (true optical of 4300dpi) resolution. Scan sizes range from 35mm to 12"x18". IQsmart3 scans up to 96 35mm slides at one time at up to 85 high res scans/hour. More info at [www.creo.com](http://www.creo.com).

**MacDermid ColorSpan Display-maker 72** outputs 400 sqft/hr in billboard mode and 200 sqft/hr in production mode. Low cost solvent pigment inks offer durable weatherproof outdoor banners, signs and displays on inexpensive uncoated vinyl and

other media. More info at [info@colorspan.com](mailto:info@colorspan.com).

### CAMERAS and CAPTURE

**ALERA Technologies** offers their Digital Photocard to CD copier as an affordable, compact, transportable means of transferring images from camera memory cards to CD without the use of a computer. The device can also be used as an external 36x CD recorder with a computer. Card data are added to a CD in multisession format and a CD will hold the contents of up to twenty-one 32 MB flash memory cards (700MB.) SRP is \$229. More info at [www.aleratec.com](http://www.aleratec.com).

**IC Intracom** offers a **Network IP Camera** with Intelligent Active Networking to make full motion video available to up to 100 simultaneous networked users on high speed DSL or cable modems. More info at [www.networkipcamera.com](http://www.networkipcamera.com).

**Axis Communications** claims the world's smallest high performance network camera with built in web server. The **AXIS 205** offers 640x480 pixels at 30 fps in a 3.14"x2"x1.3" package and is aimed at indoor remote monitoring of property, business, vacation homes, etc. Each camera has a built in web server and is accorded its own IP address so it can be directly accessed from any computer over the Internet. Each camera can support up to 20 simultaneous viewers. Double password protection is provided to assure only authorized viewing access. SRP is \$199. More info at [www.axis.com](http://www.axis.com).

**SmaL Camera Technologies** offers the **Ultra-Pocket 3** development kit for OEM 1.3 MP credit card cameras with color TFT display. Their previous VGA kit enabled over 1MM credit card cameras from FujiFilm, AXIA, Radio Shack, LogiTech, Oregon Scientific and Creative Labs. The 1.3 MP resolution is suitable for prints up to 5"x7". Their proprietary technologies, AutoBrite® and Longevity™ provide hundreds of times more dynamic range (than any CCD or CMOS sensor without it) in an ultra low power design. A rechargeable internal polymer lithium battery is recharged from the USB port each

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## Symposium Celebrates the Life of Holographer Stephen Benton

*Submitted by: Dr. Michael Halle who studied and taught holography with Steve Benton at the MIT Media Lab.*

Holographic scientists, artists, colleagues and friends came to the MIT Media Laboratory on November 11, 2003 to participate in Benton Vision, a symposium honoring legendary holographer and MIT professor Stephen A. Benton. Perhaps more than any other person, Steve Benton transformed holography from a laboratory curiosity into a three-dimensional display medium useful for artistic expression and scientific visualization. His 1969 invention of the rainbow or Benton hologram, which could be viewed using white light rather than laser illumination, led the way to mass production of bright, colorful holographic images now common on credit cards and product packaging. Sadly, the celebration of Steve's contributions to holography was tempered by the news of his death two days earlier after a year-long fight with brain cancer at age 61.

The symposium opened with a word of thanks from Jeannie Benton, Steve's wife of 39 years. Jeannie said her husband had greatly looked forward to participating in the event, and that the excitement and the kind words from around the world had "focused their thoughts" and "kept them going" over the last several months. To the two of them, the symposium was a "celebration of the shared history" of all the people who had touched Steve's life. She also recalled how Steve so enjoyed his time as researcher and professor at MIT, saying shortly after he arrived, "Once you've been to Oz, you can't ever go back to Kansas."

Jeannie turned the podium over to Nicholas Negroponete, founder of the MIT Media Laboratory. Mr. Negroponete said that in 1979, he and then-MIT president Jerome Wiesner had identified Steve Benton as the ideal person for their future Media Lab: someone who blended the "scientific and technological bloodline of MIT" with a "powerful sense of expression." Finally successful in "luring" Steve from the

Polaroid Corporation to MIT, Negroponete and Wiesner established the Media Lab with holography as one of its core technologies.

Mr. Negroponete closed by showing a short video from 1985 that described Benton's then-newly formed Spatial Imaging Group. In the video, Steve describes some of the group's early breakthroughs in computer generated holograms, telling the audience that "we expect holography to move forward quickly over the next few years." His prediction would certainly come true: the Spatial Imaging Group would lead the world in developing new holographic technologies and applying them to visualization in design, medicine, and science. These achievements would include full color computer generated holograms, new display formats and image synthesis techniques, and the world's first holographic video display system.

Welcoming Benton Vision's first invited speakers was Charles M. Vest, president of MIT, holographer, and author of one of the seminal textbooks in the field of holographic interferometry. Pres. Vest recalled Steve as both a "warm friend and a distinguished colleague," a man of great technical skills behind "unforgettable sparkling eyes." Dr. Vest introduced Yuri N. Denisyuk, the Russian inventor of the white-light viewable reflection hologram. Prof. Denisyuk told the crowd how he first met Steve back when Russian holography was not well recognized. Many people at the time believed the two holographers were in competition. Quite to the contrary, he said: Steve helped forge collaboration between Western and Eastern holographers to create brighter holograms, maintaining a dialogue with Prof. Denisyuk and enabling him to travel to the United States for technical conferences. Prof. Denisyuk closed by saying, "Steve was the heart of holography.... I have such gratitude for him, and sadness that we have lost a man who united so many.... His soul should feel good to see this meeting."



PHOTO / WEBB CHAPPELL

*Stephen Benton in his MIT Laboratory in 1998, with an early holovideo apparatus.*

The next speaker was Emmett Leith, the University of Michigan co-inventor of laser transmission holography. Dr. Leith chronicled the history of progress in holography to provide context for understanding Steve's many contributions. Dr. Leith affirmed that the mass reproducibility of the Benton hologram made holography the billion-dollar business it is today: 99% of all holograms are Benton holograms, he stated. Recalling the first time he had heard about a rainbow hologram, Dr. Leith said that he was surprised to find that more artists than scientists were familiar with the technology. When the technique was formally presented at a Gordon conference in 1976, the conference holographers (as well as attendees from a real estate conference staying in the same hotel) were "absolutely astounded" by the sharp, spectral images of the rainbow hologram. According to Dr. Leith, Steve's MIT research lab became a place where otherwise "unheard of" interactions could take place between artists and scientists, cementing Steve's legacy as one "utterly unique and long lasting."

The balance of the invited Benton Vision symposium speakers presented their own unique perspectives on Steve and his personal and professional relationships with them.

Moderating the session was photonics pioneer and Stanford Professor Joseph W. Goodman. Long-time colleague Jean-Marc Fournier recalled the research contributions that Steve and Jeannie made together at Polaroid. He compared Steve's grasp of science and art to that of Steve's two mentors, strobe pioneer Harold "Doc" Edgerton and instant photography inventor Edwin Land. Dr. Fournier served as session chair with Steve for the "Practical Holography" SPIE meetings for many years; he brought news that the

SPIE plans to release the collected proceedings of the holography and 3D imaging conferences chaired by Steve on CD-ROM.

High-energy physicist and holographic photochemist Nicholas Phillips said that Steve was a "very clever" man with "tremendous intellect," "one of the greatest teachers of physics" that he had ever known. Michael Klug, a former student of Steve's and co-founder of Zebra Imaging, described how Steve had motivated his quest for high quality displays. Dr. Andrew Pepper of Nottingham Trent University and Betsy Connors, another of Steve's former students and holographic artist, related warm written sentiments from invited speaker and artist Margaret Benyon and from scores of

other artists from around the world who had worked with Steve. Finally, holographer Richard D. Rallison talked about how Steve and his brother Chris inspired him and helped him in his holographic optics business—"none of it would have been possible without Steve."

The Benton Vision celebration closed with a reception that, much like Steve Benton himself, brought together scientists and artists, established experts and new faces, family and colleagues, new and old friends. Of this scene and the entire event, the father of the rainbow hologram would surely have approved.

*Steve's obituary will be published in the January 2004 issue of JIST.*

#### New Products continued from page 13

time images are downloaded. The battery stores enough charge for 200 shots (including 1.5" LCD and 100 % flash.) The kit contains a 1.3MP CMOS imager with integrated AutoBrite, an ASIC controller, lithium polymer battery, all glass optimized taking lens, optical viewfinder, and a complete reference design. More info at [www.smallcamera.com](http://www.smallcamera.com).

**Oregon Scientific** offers their 1.3MP **DS6628** credit card camera based on the SmaL camera technology and replacing their VGA model DS6618. The credit card sized camera has detachable electronic flash powered by its own AAA battery so the internal camera battery is not depleted. As a result, the battery has enough stored energy for approximately 500 shots before recharge. The 16MB internal memory will store 22 full 1.3 MP resolution images or 91 at VGA resolution. The camera also has an SD card slot for memory expansion. More info at [www.oscientific.com](http://www.oscientific.com).

**Concord Camera's Eye-Q 2040** digital camera features a 2 MP CMOS sensor, 4x digital zoom, 1.5" LCD, 7MB internal memory and an SD/

MMC slot for expanded memory at an SRP under \$100. More info at [www.concord.com](http://www.concord.com).

**PENTAX' Optio555** digital SLR featured camera has a 5 MP sensor and features simplicity of use with the camera ready for use as soon as turned on and quick one touch switching between display of recorded images and ready for taking new images. The camera features 5x optical and 4x digital zoom. More info at [www.pentaxusa.com](http://www.pentaxusa.com).

**FujiFilm's FinePix S3000** digital SLR type camera replaces the existing 3800 model. Featuring 3.2 MP (effective) CCD, 6x optical and 3.2 digital zoom, the camera will take up to 350 images with LCD on and 50% flash on a set of four AA alkaline batteries. The camera comes with a 16MB XD memory card and a software suite at an SLP of \$399.99. More info at [www.fujifilm.com](http://www.fujifilm.com) and at [www.digitalcameradeveloping.com](http://www.digitalcameradeveloping.com).

**Canon** offers the **PowerShot G5** digital camera with a 1/1.8" 5MP CCD, resolution of 2592x1944 pixels, their proprietary DIGIC image processor, 4x all glass optical zoom and 4x digital zoom at an SRP of \$899. More

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**ISO Central Secretariat Guidance on preparation of standards to be distributed in electronic form.** The ISO SCIT requests the ISO Central Secretariat to provide formal guidance on procedures for

- 1) the preparation of standards to be published in electronic form and/or;
- 2) standards which have normative references that are only available electronically. Further, the SCIT is concerned about the definition of the responsibility for archiving such electronic-only references.

For suggestions for future updates, or standards questions in general, please contact the author at [mcdowell@npes.org](mailto:mcdowell@npes.org) or [mcdowell@kodak.com](mailto:mcdowell@kodak.com)