ABSTRACTS OF PAPERS FROM OTHER JOURNALS

Amorphous GdCo Film for Magneto-Optical Disk Storage, Yuji Togami, Kikuo Kobayashi, and Teruo Teranishi, *NHK Technical Monograph,* No. 33, September 1983.

Magneto-optical storage systems are attracting interest as erasable optical disk systems with high packing density. The principle of, and materials for, magneto-optical storage are reviewed. Experimental results for improving an amorphous GdCo film for magneto-optical use and for recording color TV signals on an improved GdCo disk are given in detail. It is emphasized that amorphous rare earth-Co alloy films, such as those of GdCo, are promising materials for magneto-optical storage.

A Synthetic Aperture Receiver with Holographic Recording, P. Lewis, *The Radio and Electronic Engineer,* 23, January 1984.

A receiver that sampled the 1-GHz radio field distribution along a 32-m horizontal line is described. The field distributions were recorded as one-dimensional, offset reference holograms. Computer processing of the holograms formed focused images of scatterers near the line-of-sight path between a CW transmitter and the receiving aperture. These images took the form of reconstructed wavefronts, which were further processed by a technique involving complex division and subtraction. Some test results are presented in which a nearby signal source and an obstacle casting a shadow were imaged.

Opto-Electronics — A New Dimension in Electronics, D. E. N. Davies, *The Radio and Electronic Engineer,* 1, January 1984.

Optical technology is playing an expanding role in modern electronic systems. Apart from the much publicized aspects of optical fiber communications, we are currently making use of opto-electronics in television cameras, displays, signal processing, and sensors. This paper briefly reviews the developing role of opto-electronics and concentrates on the three separate fields of communications, sensors, and radar systems. It concludes that the combined power of optics and electronics represents a formidable capability that is still at an early stage of development. The broader impact of such changes within the profession is also mentioned.

A Low-Cost High-Intensity Absolute Monochromatic Sensitometer, G. G. Attridge and R. Trunley, *Journal of Photographic Science,* 37, January/February 1984.

The requirement and specification for an absolute monochromatic sensitometer are reviewed, and design considerations are discussed. The instrument constructed and its calibration are described. Practical applications to fundamental investigations of photographic systems are briefly indicated and the exposures required for a range of materials are shown.

Performance Evaluation in an ISDN — Digital Transmission Impairments, P. Huckett, *The Radio and Electronic Engineer,* 97, February 1984.

This paper considers the performance evaluation of the future integrated services digital network. Emphasis is given to the measurement and instrumentation necessary to quantify the most important digital transmission impairments, jitter and errors. The trend towards nonintrusive measurements and automated testing made possible by advances in digital technology are reviewed.

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Procedures for Accurate Production of Color Images from Satellite or Aircraft Multispectral Digital Data, Joseph S. Duval, *Journal of Imaging Technology,* 16, February 1984.

Because the display and interpretation of satellite and aircraft remote-sensing data make extensive use of color film products, accurate reproduction of the color images is important. To achieve accurate color reproduction, the exposure and chemical processing of the film must be monitored and controlled. By using a combination of sensitometry, densitometry, and transfer functions that control film response curves, all the steps in the making of film images can be monitored and controlled.

Because a sensitometer produces a calibrated exposure, the resulting step wedge can be used to monitor the chemical processing of the film. Step wedges put on film by image recording machines provide a means of monitoring the film exposure and color balance of the machines. The use of transfer functions enables the user to display the data so as to optimize the film response for the visual perception of the image.

The Evolution of Transmission and Switching for Integrated Services Digital Network, G. H. Bennett, *The Radio and Electronic Engineer,* 59, February 1984.

This paper reviews the evolution of digital transmission and switching in a telecommunication network and emphasizes the importance of integration of networks and services. The concept of an integrated digital network and an integrated services digital network is introduced. The repertoire of transmission systems available in the U.K. to realize such networks is briefly reviewed. The objective is to provide general background information supporting the companion papers in these special issues.

Image Processing Comes Down to Earth, Abe Coriat, *Photonics Spectra,* 71, March 1984.

Industrial inspection, test, and control is bringing electronic imaging down to earth in a wide variety of applications. It is expected that image processing will be used in industrial markets in two principal application areas: nondestructive testing, and machine vision.

Investigation of the Methods for Improving Interlaced TV Reproduction (in Russian), E. Z. Soroka and A. N. Yulish, *Tekhnika Kino i Televidenya,* 43, March 1984.

The paper considers several methods of converting the standard interlaced scanning on the receiving side to improve reproduction quality. Two methods are described: transition to 75-Hz field frequency retaining interlaced scanning, and transition to 50-Hz frame frequency with line-by-line scanning. Based on the expression for the overall vertical-time-spectrum conversion, its distortions are studied.

The Reflection Phase Grating Diffusor: Design Theory and Application, Peter D'Antonio and John Konnert, *Journal of the Audio Engineering Society,* 228, April 1984.

The far-field diffraction theory of the Schroeder reflection phase grating diffusor, which provides broad-bandwidth wide-angle coverage, is reviewed. Design parameters are discussed, and theoretical diffraction patterns are presented for a quadratic-residue and a primitive-root example. The diffraction patterns are obtained using a new reflection phase grating program, which was developed to facilitate the design and evaluation of these acoustical diffusors.

Experimental energy-time curves are presented and discussed for two models, and studio applications are mentioned. Observations in recording control rooms suggest that the reflection phase grating diffusor helps maintain the stereo perspective across the width of the mixing console and adds the sweetening of a concert hall to a treated room.