



# 1. European Symposium on Emerging and Industrial DLP® Applications

Sponsored by:

Visitech AS, Drammen, Norway

a *Digital Imagination*® Company

In-Vision Digital Imaging GmbH  
Guntramsdorf, Austria



Hessian Ministry for Economics, Transport, Urban  
and Regional Development

Date: December 12, 2006

Time: 09:30 h – 17:00 h

Location: Ernst-Leitz-Saal and Moritz-Hensoldt-Saal  
(Center for High Tech and Culture)  
Steinbühlstraße 15 C, 35578 Wetzlar, Germany

## Program and Schedule

- 09:30 h Welcome by Photonic Center Hessen in Wetzlar AG  
Dr. Marcus Serwazi, CEO PZH in Wetzlar AG
- 09:45 h Welcome  
Klaus-Dieter Jäger, Assistant Secretary of State, Hessian Ministry of  
Economics, Transport, Urban and Regional Development
- 10:00 h Key Note presentation  
DLP® technology: Overview of technology, Products (general and  
specific for Emerging Applications), currently existing fields of  
application for Industrial and Emerging, DLP Discovery® product  
portfolio, sales channels and policy  
Speaker: Wolfram Gauglitz, Texas Instruments Inc.
- 10:40 h Technical paper  
Light Sources: Xenon discharge lamps and light sources for DLP®  
Applications  
Speaker: Dr. Christoph Mehlmann, PerkinElmer Optoelectronics
- 11:10 h Technical paper  
Light sources: High power LEDs for DLP® Applications  
Speaker: Wolfgang Schnabel, Osram Semiconductors GmbH
- 11:40 h Technical paper  
Optical subsystem: Illumination and Imaging optics in DLP®  
Applications  
Speaker: Günter Zöchling, Digital Imaging GmbH
- 12:20 h – 13:00 h: Lunch break
- 13:00 h Technical paper  
Color Management and Coated Components for DLP® Applications  
Speaker: Dr. Othmar Züger, OC Oerlikon Balzers Ltd., Optics
- 13:30 h Technical paper  
Custom Formatter, Interface and I/O-Board development  
Speaker: Oddvar Löken, Visitech AS
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14:10 h – 15:00 h Company presentations Foyer (including Coffee break)

15:00 h Technical paper

“What else is necessary for an efficient DLP® Application?” –  
Holographic screens, Speckle reduction in Laser illumination etc.  
Speaker: Prof. Theo Tschudi, PZH in Wetzlar AG

15:30 h – 16:30 h DLP® Industrial Applications

1. UV-Setter: CtP for UV-sensitive plates  
John Hedde, Punch Graphix Prepress Germany GmbH
2. Perfactory®: Computer Aided Modeling Devices  
Hendrik John, Envisiontec GmbH
3. GENIOM® - DLP based genetic synthesis and biochip analysis  
Cord F. Stähler, Febit biotech GmbH

16:30 h Market Briefing

Analysis of the DLP® Applications  
Eric Mounier, Yole Développement

16:50 h Closing words

Alfred Jacobsen, OpSys Project Consulting

17:00 h End of Session, individual meetings and exhibit

Moderation: Alfred Jacobsen, OpSys Project Consulting

**Exhibit:**

Exhibit area in Moritz-Hensoldt-Saal (side hall) in parallel to the event

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# PROJECTION MONTHLY

## *With Flat Panel Coverage*

(Article excerpted from Projection Monthly, January 2007)

Published by Insight Media

### *Microdisplays*

*Alfred Jacobsen*

#### **New Emerging and Industrial DLP Apps Conference**

To foster development of non-display applications for the DMD chip set, Texas Instrument developed its DMD Discovery line. Now, as the need for more support for these applications grows, a new conference was recent held. Photonik Zentrum Hessen ([www.pzh-wetzlar.de](http://www.pzh-wetzlar.de)), OpSys Project Consulting ([www.opsysconsult.com](http://www.opsysconsult.com)) and the regional photonics competence



*120 attendees from 14 European countries followed the presentations*

network Optence e.V. ([www.optence.de](http://www.optence.de)) jointly organized the 1st European Symposium on Emerging and Industrial DLP Applications in Wetzlar, Germany.

The event created more attention and attendance than any of the organizers, sponsors and supporters anticipated – 120 attendees from 14 European countries. Some of the applications for the Discovery DMDs include volumetric displays, lithography and stereo-lithography applications, measurement instrumentation and medical imaging products.

Since introduction of the DLP Discovery product line, there has been growing interest in the technology and its many applications beyond projection. System solutions for such applications vary widely and there is noticeable

demand for background information, technical information and support among users and potential users.

Texas Instruments is supporting the involvement of technical partners especially in the fields of electronics and optics by joint marketing activities, i.e. presentations at key trade shows like Photonics West, Laser – Word of Photonics, Europhotonics and others. Nevertheless, it remains difficult for the interested researchers and product developers to obtain compiled technical



*DLP Discovery Chipsets, Development Kits and accessories*

information for their specific product development. By organizing this new event, attendees could share information in an effort to speed product development.

The event provided an opportunity to get the latest news on specific components, sub-assemblies and products related to industrial DLP applications. Presenters and speakers from well-known international companies in this field introduced their latest products and tools supporting product developments. They also provided comprehensive technical overviews related fields like light sources, spectral management, optics electronics, etc.

In addition, ten exhibitors from seven European countries drew attention to their actual products and services in industrial DLP applications and beyond.

Admission fees were lower due to the help of sponsorship by the Nanotech Initiative of the State of

Hessen, Germany and the companies Visitech AS of Norway and In-Vision Digital Imaging GmbH of Austria.

After greeting words from state and city representatives, Dr. Marcus Serwazi introduced the audience into the function and vision of the recently founded Photonik Zentrum Hessen in Wetzlar AG to support and sustain the regional optics and photonics industry around Wetzlar and Central Hessen.

The keynote presentation by Wolfram Gauglitz, Texas Instruments' EMEA Manager gave a general introduction of the DLP technology and a historical overview of product generations in projection applications. The second part of the presentation focused on the Discovery chip set. This helped to fill in gaps in knowledge and provided more information on the recently introduced DMD Discovery 3000 Development Kit and Chipsets with 0.7" XGA and 0.9" SXGA+ LVDS DMDs. The UV community was especially amazed by the latest product announcement of the 0.7" XGA LVDS UV-enhanced DMD to be available in March 2007.

The controller boards for these DMDs allow up to 16,300 binary frames per second with sequential or random row addressing. Highly versatile FPGA chips and generous on-board RAM provide significant flexibility to use these products in wide variety of industrial products.

A major area of interest in industrial applications is the evaluation and selection of suitable light sources. Two presentations focused especially on this field. In one, Dr. Christoph Mehlmann from PerkinElmer Optoelectronics presented advantages of Xenon-based DC



*In-Vision Digital Imaging demonstrated a complete DLP light engine built into a biotechnical DNA sequencer*

discharge lamps (Cermax type) and its spectral characteristics for emerging and industrial applications. These include continuous spectral output in the visible range and in the UV-range (with special reflectors) exactly fitting the functional parameters for the DMD Discovery types. Compact lamp modules and a range of different power levels in conjunction with dimming capabilities provide additional flexibility in industrial DLP product designs. The recently launched Gen 3 800W module raised noticeable interest among the attendees working within UV applications.

The other end of the scale of light sources for industrial DLP applications is covered by high power LEDs. Wolfgang Schnabel, Marketing Manager at Osram Semiconductors gave an excellent overview about state-of-the-art in this rapidly developing segment. A good scale for achievements in brightness is the recent implementation of LED modules in RPTVs. Its transfer into industrial product developments apparently offer very interesting benefits, i.e. narrow spectral bandwidth, long lifetime, fast switching times, dimming capabilities and especially the 25% higher luminous output in pulsed operation.



*Günter Zöchling from In-Vision Digital Imaging, Austria, presenting his thoughts on illumination and imaging system interfaces*

Dr. Othmar Züger from Oerlikon Balzers presented the range of products for color and light management in DLP-based optical systems and gave some special insight in the current activities around laser-based optical systems and its advantages in color gamut and lifetime. He also touched on the critical topics of speckle reduction and insufficient brightness of today's systems.

An overview on new products and an almost philosophical view on the different types of interfaces between illumination and imaging path in DLP-based systems, was given by Günter Zöchling, Head Optical Designer at In-Vision Digital Imaging. He specifically addressed the benefits and challenges of TIR-prism and field-lens-based systems with different kinds of light sources, imaging optics and applications.

Prof. Theo Tschudi from the Photonik Zentrum Hessen AG again picked up the critical topic of speckle reduction in laser-based optical systems. He presented research results primarily addressing perception of speckles in visual systems as a consequence from coherence of light. Static or even rotating diffractive optical elements (DOE) were proposed to significantly reduce visibility of speckle.

Visitech AS from Norway presented their recently introduced Luxbeam 3000 DMD formatter platform, optimally fit to the DMD Discovery 3000 Chipset with the 0.7" XGA LVDS DMD. Oddvar Loken assigned the product to be an ideal starting point for custom product developments. The design enables special frame sequences, high frame rates and scrolling images. Optional color wheel link and support of various light sources, including the Visitech's LED-Beam concept, have been included in applications like autostereoscopic 3D monitors and DLP Film Recorder systems.

To give the audience an idea about the diversity of product developments in the field of industrial applications, the 1st Symposium on Emerging and Industrial DLP Applications was completed by presentation of various products on the market using DMD Discovery technology.

For example, Punch Graphix Prepress Germany explained the details and features of its Computer-to-Plate UV setter, specifically indicating the challenges and limitations of high power UV applications. Stereo-lithography, especially for small prototypes in jewelry and medical prosthetics, was demonstrated by Envisiontec with its Perfactory System. Sophisticated DNA chip generation and DNA analysis is enabled with the Geniom genetic synthesis and biochip analysis system of Febit biotech GmbH.

Overall, there was positive feedback on the presentations and organization of this 1st Symposium, providing a good foundation to consider and plan for a second event in course of 2007. –AJ, CC



*Visitech's Luxbeam and LEDBeam platforms together with several custom product solutions*

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