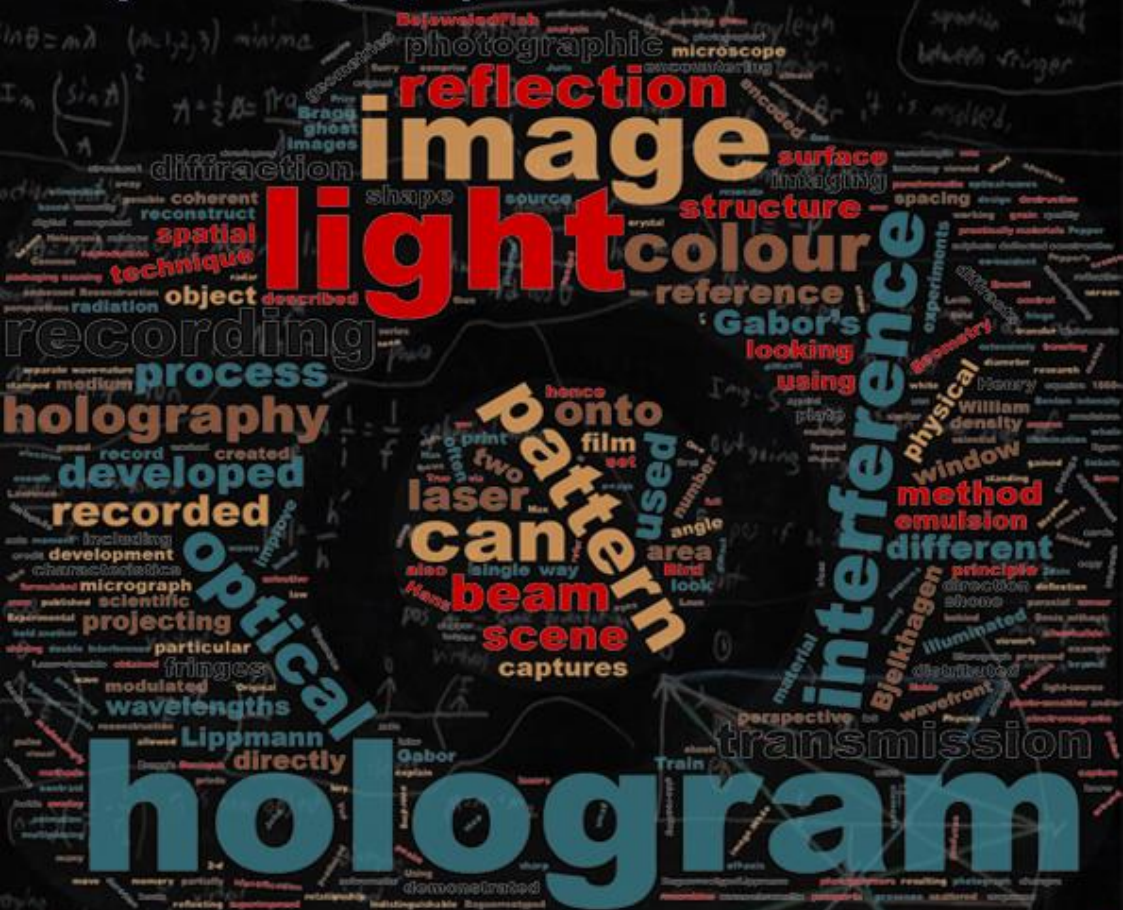
DHIP 2017

The Seventh Korea-Japan Workshop on Digital Holography and Information Photonics



December 20-22, 2017

DGDC, Daegu, South Korea

Organizers:

Optical Society of Korea (OSK)

The Optical Socety of Japan (OSJ)

School of Electronics Engineering,Kyungpook National University (KNU)

Sponsored by:

Center for Research and Development of Police Science and Technology

ITRC on Hologram Convergence Technology

Korea Photonics Technology Institute (KOPTI)

Korea Electronics Technology Institute (KETI)

ICT Fundamental Laboratory

Welcome

Welcome to Seventh Korea-Japan International Workshop on Digital Holography and Information Photonics 2017 (DHIP 2017)!

On behalf of DHIP committee, it is our great pleasure to welcome keynote speakers, invited speakers, contributed presenters and all participants.

This workshop was born in 2011 by close cooperation between Korean and Japanese scholars in the field of digital holography and information optics and has been held every year alternating venue between Korea and Japan for the last 6 years. We believe that the DHIP is now one of the most successful models promoting cooperation and friendship between research communities of two countries.

In DHIP 2017, we have 2 keynote presentations, 26 invited oral presentations, and 44 poster presentations.

We would like to express our gratitude to the optical societies of two countries, OSK and OSJ, and many institutes supporting this workshop including School of Electronics Engineering, Kyungpook National University, Center for Research and Development of Police Science and Technology, ITRC on Hologram Convergence Technology, Korea Photonics Technology Institute (KOPTI), Korea Electronics Technology Institute (KETI) and ICT Fundamental Laboratory (IITP).

We truly hope that you will enjoy both technical and social programs of the DHIP 2017. It will be our great pleasure if this workshop could be a ground for exchanging knowledge and ideas in rapidly growing research fields of digital holography and information photonics.

Welcome to Daegu and Merry Christmas!
Sincerely,

Sung-Wook Min, General Chair
Jae-Hyeung Park, Program Chair
Joonku Hahn, Local Committee Chair

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Members
Muhan Choi (*Kyungpook National University*, Korea)
Seung-Yeol Lee (*Kyungpook National University*, Korea)

Time Table


December 20
Session 1
9:00
Nam Kim
(Keynote)
10:00
Yusuke Ogura
Hoonjong Kang
Coffee Break
Session 2
11:00
Yasuhiro Mizutani
Hwi Kim
12:00
Yoshinori Akao
Lunch Time
13:00
Session 3
Joonku Hahn
14:00
Naoya Tate
Seung-Yeol Lee
Coffee Break
Session 4
15:00
Hidenobu Arimoto
Taegeun Kim
16:00
Samuel choi
17:00
Poster Session
18:00
19:00
20:00
December 21
Session 5
9:00
Masahiro Yamaguchi
(Keynote)
10:00
Minsik Park
Yusuke Sando
Coffee Break
Session 6
11:00
Sung-Kyu Kim
Hirotsugu Yamamoto
12:00
Byoungho Lee
Lunch Time
13:00
Session 7
Osamu Matoba
14:00
Muhan Choi
Tastuki Tahara
Coffee Break
Session 8
15:00
Kwang-Hoon Lee
Kenji Harada
16:00
Hee-Jin Choi
17:00
Lab Tour
18:00
19:00
Banquet
20:00
December 22
Session 9
9:00
Yoshio Hayasaki
Jae-Hyeung Park
10:00
Takanori Nomura
Sung-Wook Min
11:00
Tour
(Gyeongju)
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00

Locations and Direction

Venue

Daegu-Gyeongbuk Design Center (DGDC)

461 Dongdaegu-ro, Dong-gu, Daegu, Korea

- **Bus number: 814 (from Dongdaegu Station)**

Contact number: +82 - 53-740-0077

Access to Venue

Bus and foot

- From Dongdaegu Station by bus (Number 814 / 수성4) to The Korea Chamber of Commerce & Industry (2 stops) and 1min walk (35m)

Taxi

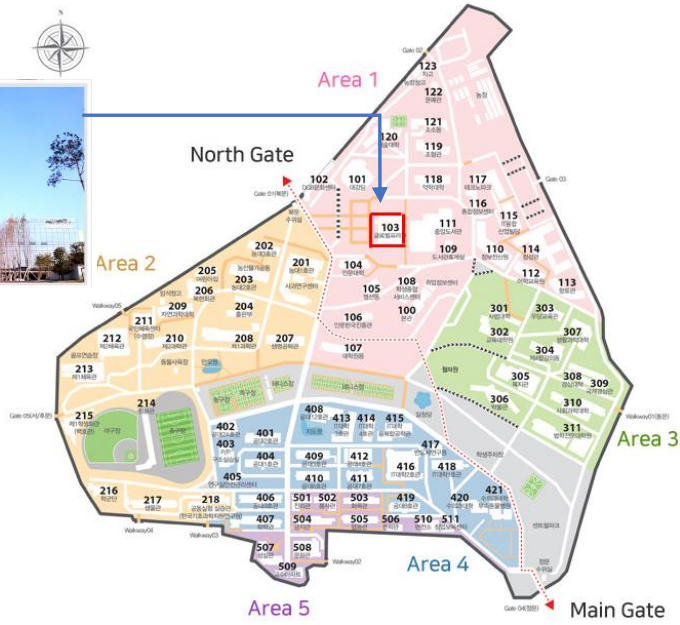
- Say to driver “To Daegu-Gyeongbuk Design Center”, takes 3mins with around 2dollars (2,800KRW)

Lab. Tour

- Date: 17:00-, December 21, 2017
- Prof. Joonku Hahn., Prof. Muhan Choi Lab., (College of IT Engineering Bldg.2, Kyungpook National University)

Banquet

- Date: 18:00-, December 21, 2017
- Location: Renaissance SkyView
- Address: **16F Global-Plaza** in KNU, 80, Daehak-ro, Buk-gu, Daegu
- Tel: +82 - 53-958-2221



Program

December 20(Wed)

Session 1: 9:00 – 10:40

Chair: Jae-Hyeung Park, Inha University

Key20a-1 9:00 | 9:50
Research and development of holographic optical element for three-dimensional display and microscopy
Nam Kim, Munkh-Uchral Erdenebat, Ki-Chul Kwon, and Young-Tae Lim
Chungbuk National University ……01

Inv20a-1 9:50 | 10:15
Three dimensional structure of subdiffraction limit optical patterns
Yusuke Ogura and Jun Tanida
Osaka University ……02

Inv20a-2 10:15 | 10:40
Research activities in KETI
Hoonjong Kang
Korea Electronics Technology Institute ……03

Session 2: 11:00 – 12:15

Chair: Naoya Tate, Kyushu University

Inv20a-3 11:00 | 11:25
Ghost imaging for single photon counting
Yasuhiro Mizutani[1,2], Hiroki Taguchi[1], Yasuhiro Takaya[1]
[1]Osaka Univesity,
[2]JST/ERATO MINOSHIMA Intelligent Optical Synthesizer Project ……04

Inv20a-4 11:25 | 11:50
Fast calculation of wide viewing angle depth-map computer-generated hologram
Hwi Kim, Sungjae Park, and Jonghyun Lee
Korea University ……05

Inv20a-5 11:50 | 12:15
Compound-eye imaging for forensics
Yoshinori Akao
National Research Institute of Police Science ……06

Lunch Time

Session 3: 13:30 – 14:45

Chair: Hwi Kim, Korea University

Inv20p-1 13:30 | 13:55 — **3D display making light field inside volume**
Joonku Hahn
Kyungpook National University ……07

Inv20p-2 13:55 | 14:20 — **Nanoscale character extraction for nano-optical metric system**
Naoya Tate
Kyushu University ……08

Inv20p-3 14:20 | 14:45 — **Reflective-type reconfigurable digital hologram panel using Ge2Sb2Te5 phase change material**
Seung-Yeol Lee
Kyungpook National University ……09

Session 4: 15:05 – 16:20

Chair: Yusuke Ogura, Osaka University

Inv20p-4 15:05 | 15:30 — **Unstained tumor detection in digestive organs based on autofluorescence spectroscopy**
Hidenobu Arimoto[1], Keiichiro Kagawa[2], Yoji Sanomura[3], Shigeto Yoshida[4], and Shinji Tanaka[3]
[1]National Institute of Advanced Industrial Science and Technology, [2]Shizuoka University, [3]Hiroshima University Hospital, [4]JR Hiroshima Hospital ……10

Inv20p-5 15:30 | 15:55 — **Recent progress on 3D target tracking using optical scanning holography**
Taegeun Kim
Sejong University ……11

Inv20p-6 15:55 | 16:20 — **Multi-frequency swept en-face optical coherence microscopy with supercontinuum comb for in-vivo measurement of inner ear**
Samuel Choi[1,4], Fumiaki Nin[2,4], Takeru Ota[2,4], Keita Sato[3], Takamasa Suzuki[3] and Hiroshi Hibino[2,4]
[1,2,3,4]Niigata University ……13

Poster Session: 16:40 – 18:00

December 21(Thu)

Session 5: 9:00 – 10:40

Chair: Yoshio Hayasaki, Utsnomiya University

Session 6: 11:00 – 12:15

Chair: Kwang-Hoon Lee, Korea Photonics Technology Institute (KOPTI)

Lunch Time

Session 7: 13:30 – 14:45

Chair: Hee-Jin Choi, Sejong University

Session 8: 15:05 – 16:20

Chair: Minsik Park, Electronics and Telecommunications Research Institute (ETRI)

December 22(Fri)

Session 9: 9:00 – 10:40

Chair: Hirotsugu Yamamoto, Utsunomiya University

MEMO

VirtualLab FUSION

FAST PHYSICAL OPTICS SOFTWARE

Unified Optical Design Software

독일 LightTrans 社에서 개발한 VirtualLab Fusion은 Ray Tracing과 Wave Optics에 이르는 다양한 광학 현상들을 하나의 플랫폼에서 구현할 수 있는 소프트웨어입니다. VirtualLab은 DOE, HOE, Grating을 비롯한 다양한 소자 및 시스템 설계를 위한 최적의 사용 환경을 제공하며, Field Tracing 시뮬레이션 엔진을 이용하여 나노스케일에서 매크로스케일에 이르는 광학 현상들을 모두 반영한 시뮬레이션이 가능합니다.

Applications

LIGHT SHAPING

Refractive optics
Diffractive optics
Diffusers
Microlens array

VIRTUAL & MIXED REALITY

Near-eye displays
Waveguide HUDs
Freeform surfaces
Pattern generation

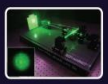
IMAGING SYSTEMS

Diffractive lenses
Advanced PSF/MTF
Ghost images
Iclusion of gratings

LASER SYSTEMS

Beam delivery
Scanning systems
fs pulse modeling
Crystal modeling

OPTICAL METROLOGY



Interfeometry
Microscopy
Monochromators
Spectrometers

lumerical
illuminating the way

Multiphysics Photonic Design Software

Lumerical Solutions는 포토닉스 분야의 소자 설계 및 분석용 소프트웨어 업계의 세계적인 선두 업체입니다. Lumerical Solutions 아래의 제품들을 바탕으로 광, 전기, 열 해석이 결합된 다중물리 시뮬레이션을 지원하며 나노 포토닉스와 관련된 다양한 응용 분야에서 최첨단 기술 개발을 돕고 있습니다.

INTERCONNECT
Photonic Integrated Circuit
Design and Simulator

Photonic Circuit Simulation

FDTD Solutions
High Performance
3D FDTD Maxwell Solver

MODE Solutions
Waveguide
Design Environment

Optical Simulation

DEVICE CT
FEM based
Charge Transport Solver

DEVICE HT
FEM based
Heat Transport Solver

Electrical & Thermal Simulation

(주)루엔소프트 | 서울시 강동구 풍성로 90 한스빌딩 503호
T: 02 – 6485 – 6701 | M: info@luensoft.co.kr | W: www.luensoft.co.kr

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