HAMAMATSU

Hamamatsu Optronics Cluster

Outline of the Project

Based on research results on optical technology of Shizuoka University and photon medical research of Hamamatsu University School of Medicine, research and development of high-functional integrated CMOS image sensor, high energy area image sensor and advanced medical system for new diagnosis (microscope, high-functional endoscope, remote diagnosis, etc) are advanced, and superior image sensing technique and system which support the industry and medical treatment in next generation will be established. Consequently new business, new industry, and new job market in the concerned field will be created in Hamamatsu area.

Members of the Headquarters

○ President…… ISHIMURA Kazukiyo (The Hamamatsu chamber of commerce& industry vice chairman)
○Project Director…… SHIBATA Yoshifumi
○Research Director …… ANDO Takao (Prof. Emeritus, Shizuoka Univ.)
○Science and Technology Coordinator…… KASHIMA Toshihiro
OKUMURA Takatoshi
TSUCHIYA Yutaka

Central Project Organization

Organization for Hamamatsu Technopolis

Core Institute(s)

Shizuoka Univ. : Research Institute of Electronics, Center for Joint Research
Hamamatsu Univ. School of Medicine : Photon Medical Research Center

Participants

Industry…Matsushita Communication Shizuoka R&D Labs Co.,Ltd., SUZUKI Motor Corporation, Innotech Corporation, Sanei Hytechs Co.,Ltd., Yokogawa Electric Corporation, Pulstec Industrial Co.,Ltd., Hamamatsu Photonics K.K.
Institute…Shizuoka Univ., Hamamatsu Univ. School of Medicine

Main Researchers

KAWAHITO Shoji (Prof., Research Institute of Electronics, Shizuoka Univ.)
TERAKAWA Susumu (Prof., Photon Medical Research Center, Hamamatsu Univ. School of Medicine)
HATANAKA Yoshinori (Visiting Prof., Center for Joint Research, Shizuoka Univ.)

Outline of Researches

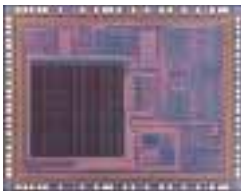
●Development of High-Functional Integrated Imaging Device

Imaging devices in next generation featuring wide dynamic range and smart imaging, which have not been realized so far, will be developed. The results obtained will be applied to industrial equipment and medical instruments and medical research equipment, etc.

<Sub Research Theme>

・Development of wide dynamic range CMOS image sensor.
・Development of onboard high-functional image sensor for a car.
・Development of image sensor for the capsular endoscope which integrates communication function with image compression.

[Shizuoka Univ., Hamamatsu Univ. School of Medicine,
Matsushita Communication Shizuoka R&D Labs Co.,Ltd.,
SUZUKI Motor Corporation,
Innotech Corporation, Sanei Hytechs Co.,Ltd.]



a CMOS image sensor chip.

●Development of Imaging System with High Fidelity Color Reproduction for Medical Applications

Medical imaging system utilizing the CMOS image sensor which reproduces colors on the display precisely is developed and applied to medical image equipment and advanced medical system.

<Sub Research Theme>

・Development of a new scanning microscope system using the confocus method.
・Development of the high-functional endoscope and operation navigation system.
・Development of the telemedicine and the imaging system with high fidelity color reproduction.

[Hamamatsu Univ. School of Medicine,Shizuoka Univ.,
Yokogawa Electric Corporation, Pulstec Industrial Co.,Ltd.,
Hamamatsu Photonics K. K.]

a medical imaging
(microscope) system.

●Development of Solid State Imaging Device for X-ray and Gamma-ray

Imaging devices for high-energy radiation are developed for non-destructive inspection and X-ray computer tomography. Application to high-performance radiation camera for medical and space activities will be carried out.

[Shizuoka Univ., Hamamatsu Photonics, K.K.]

Imaging device for
high energy radiation

Expected Results

○The manufacture of image sensors available for onboard cameras, cameras for the monitoring, cameras for the broadcasting, etc.
○The establishment of new medical system and technology which assist accurate medical diagnosis and brain surgery operations, etc.
○The establishment of the detection technology for high energy radiation which makes it possible to diagnose early cancer and Alzheimer disease