

## **Imagination and Illusion**

**Nobuhiko Tsunefuka**

Recently, we see more lighting that uses blue and white LEDs. Christmas last year was almost filled with blue and white decorations that adorned Christmas trees and roadside trees. Walking on a street lined with trees that are adorned pure white by white LED on a freezing cold night would make one to think as if he or she is in a beautiful scene of Winter Sonata, a romantic TV drama. This is made possible through to blue and white light emitting diodes (LEDs) that are available on the market at a reasonable price. Cold cathode tubes have been used in liquid-crystal backlights of cell phones, but LED backlights are increasing in number. More liquid-crystal TV sets that use LEDs are put on the market because of good color rendition performance. LEDs in three primary colors are available and visible rays can now be produced freely so that LED lighting is beginning to be used in bio plant factories also. Incandescent lamps were used in growing chrysanthemums, strawberries and other flowers and fruits. Incandescent lamps are replaced by fluorescent lamps and high-pressure sodium lamps and the latter lamps will be replaced by LED light sources too. Prof. Kazutaka Miyatake, 56, of Osaka Prefecture University Graduate School, is developing a vegetable growth system that can easily grow salad greens, spinach, green vegetable of the mustard family originated in China and other vegetables in industry-academia cooperation. It will not be too long before vegetable incubators are installed in convenience stores to grow 96 plants each at a time fully automatically and sell them at the stores when they grow. This too owes to the reproduction of rays of the four seasons by virtual solar rays.

- Japanese Society of High Technology in Agriculture (SHITA):

<http://shita.jp/society/shita-j.html>

- LED-light source lettuce plants:

<http://www.kyoto-keizai.co.jp/875.html>

- For more information on development of fully automated vegetable grower of Osaka Prefecture University:

<http://www.st.rim.or.jp/~hide/topic.html>

- For more information on the hybrid plant factory:

<http://www.kanaijuyo.co.jp/kenkyu/nougyou.html>

SIGGRAPH, the big festival of CG (computer graphics), will be held this year also between July 31 and August 4 in Los Angeles, America. Ancient cities can be rebuilt as real, using pictures created fully by means of the CG technology. Special effects (SFX) of CG have been used in commercials, program titles and other picture and SF movies to give the audience a great impact. In recent years, SFX is called more as VFX

(visual effects) and is now used in almost all movies that contain combat scenes of players and animals, action scenes and other scenes. It is no exaggeration to say that movies can no longer be produced without VFX.

Youths who cannot find a dream in the real world become excited by imaginary and illusionary world such as comics, animation and games and form a world among geeks. More than 100 shops line in the Akihabara Electric District of Tokyo selling commodities for these geeks and the number of these shops is still increasing.

Whereas imagination was the realm of Buddhist philosophy and mythology, everyone is now living in a niche between reality and imagination. In the world of finance, imagination in which trade information flies in networks is a predominant world.

- For a virtual trip to ancient cities, visit:  
<http://www.taisei-kodaitoshi.com/enter.html>
- For more information about ACM SIGGRAPH, visit:  
<http://www.siggraph.org/>
- For an SFC CG textbook, visit:  
<http://chiyo.sfc.keio.ac.jp/cgsoft/Release/Textbook/index.html>
- For more information on SFX, visit:  
<http://www.jiten.com/dicmi/docs/s/10585.htm>
- For more information on VFX, visit:  
<http://www.vfxhq.com/>
- For definition of geeks, visit:  
<http://www.urbandictionary.com/define.php?term=otaku>

The electromagnetic field simulator has become a necessary and indispensable tool in R&D and design that handle electromagnetic fields. The simulators use the moment method (MoM), finite element method (FEM), finite-difference time-domain (FDTD) method, finite integration method (FIM), transfer line modeling (TLM) method and other electromagnetic field analysis techniques.

One often experiences the illusion of buying a wireless LAN or other wireless products on catalog data analyzed by using such tool, to find that an antenna of the purchased product cannot be connected even in the same room or speed is low because of a slight difference in chemistry in the layout of furniture and appliances in the room. More stores are now willing to change with parts or products of other vendors. This may be a practical way to solve these problems facing reality.

- For a link to information on electromagnetic field simulators, visit:  
[http://www-antenna.ee.titech.ac.jp/~hira/hobby/edu/em/em\\_simulators/link.html](http://www-antenna.ee.titech.ac.jp/~hira/hobby/edu/em/em_simulators/link.html)
- For more information on RF simulators and electromagnetic field analysis software, visit:  
<http://www.geocities.jp/rfpagejp/emsim.html>
- For assurance on exchange of wireless LAN, visit:  
<http://www.zoa.co.jp/zoa20/WIRELESS%20LAN.htm>

- For trends and problems with wireless LAN standards, visit:

<http://www.drizzle.com/~aboba/IEEE/>

In electromagnetic wave noise control, signal integrity (SI) design and power integrity (PI) design, results of analysis by electromagnetic field simulators modeled after design objects and of measurement of electric fields and magnetic fields of products and printed circuit boards are visualized and are achieving good results.

The VCCI is modeling EMC phenomena in an easy-to-understand manner and is distributing CD-ROMs of visual aids of these models and VCCI activities. These models are also used in training of VCCI measurement engineers.

- For more information on EMC training programs and training activity reports of VCCI, visit:

<http://www.vcci.or.jp/news/newinfo40.html>

[http://www.vcci.or.jp/news/jigyou\\_houkoku\\_2004/kyouiku\\_2004.pdf](http://www.vcci.or.jp/news/jigyou_houkoku_2004/kyouiku_2004.pdf)



Training Facilities



Nobuhiko Tsunefuka

1943 Born in Tokyo

1968 Graduated from Department of Engineering Science, Osaka University

~ 1984 Worked on developing Information Technology Device at Taga Works, Hitachi, Ltd.

1991 ~ Engaged in education on EMC related matters at Hitachi Institute of Technology

1999 ~ Planning Manager

2005 ~ International Business Communication Services Dept., Hitachi, Ltd.