

가 ? 가 ?..... (Drug Delivery System)가 , 가 , , IT , , , 1959 R. P. Feynman American Physical Society "There is Plenty of Room at the Bottom" 가 Bit , "Feynman Nanotechnology" Feynmann . " , 가 . " Feynman-style Nanotechnology . DRAM (Dynamic Random Access Memory) , 100 nanometer . (Bottom-Up) "Drexler Nanotechnology" , Stanford University K.Eric Drexler 1980 "Assembler" , (mallet) 가 , , "Assembler" 가 . Drexler "Replicator" , " (Molecular Repair Machine)" .

“Assemblers” “Replicators” 가 , 가
 , , , 가
 . ,
 . DNA Ribosome
 “Assembler” , .
 , 가 Ribosome
 “Assembler” (Meat) .
 , 1992 NT ,
 , ETL(Electrotechnical Laboratory), Institute of
 Molecular Science, JRCAT(Joint Research Center for Atom Technology), Kyoto
 University, NAIR(National Institute for Advancement of Interdisciplinary Research),
 NEC, NRIM(National Research Institute for Metals), RIKEN(Institute of Physical and
 Chemical Research), Tohoku University ,
 가 . “Nanotechnology” 가
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 ,
 가 . 2000 5 가 17
 가 ,
 가 ,
 (Science and Technology Basic Law) ,
 2001 5 24 , ,
 .
 , 700 US\$ Hitachi
 25% , 400
 US\$ NEC Precompetitive Research 50%
 , NTT (Atsugi Lab), Fujitsu (Quantum Electron Devices
 Lab), Sony, Fuji Photo Film Co. .
 ,
 . SPM(Scanning Probe Microscopy) TEM(Transmission
 Electron Microscopy)
 . SPM DNA, Fullerene Quantum

Mirage and Nanostructures, 1999 Atometrically Controlled Surfaces, Interfaces, Nanoscience Prize

Dr. Don Eigler SPM

'Quantum Mirage'

University R. E. Smalley 'Fullerenes' 1996 Rice R. F. Curl

가

, 'Fullerenes'

가 Closed Shells

가

가

graphite,

diamond, chaoit,

carbon(VI)

1968, 1972

. Fullerene Shell

가

, Carbon Nano-Tubes (CNT) 1991 NEC S. Iijima

가

. CNT

FED(Field Emission Device)

가

. CNT

TV

CNT-FED

CNT

, CNT

가

TV



Kondo

가

Kondo Effect

Quantum Mirage

IL-6
18가 IL IL-6(Interleukin-6)
가
50 30



1.

(1)

(2)

2. SPM

가 , Lithography, 가 SPM

(1) Probe

가 가 SPM 가

(2)

SPM 가

3.

(1)

(2) Flat Panel Display

Flat Panel Display
가

가

CRT, LCD, Plasma Display

(3)

가
가

가

가

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