Towards integrating computational nanoscience?

Stephane Redon

NANO-D – INRIA
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Nanoscience is all around
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**Hair strand**
0.05 millimeters = 50 micrometers = 50,000 nanometers

**DNA strand**: 2 nanometers

**O – H distance in a water molecule**:
1 Ångström = 0.1 nanometers
Nanoscience is all around

[Eigler and Schweizer, Nature 1990]

[Rothemund, Nature 2006]

[Dietz et al., Science 2009]
Nanoscience is all around

[Mou et al., Nature 2015]
Nanoscience is all around

[Burns et al., Nature Nanotechnology 2016]
Nanoscience is all around

[Chen et al., 2005]  [Grill et al., 2007]  [Joachim et al., 2000]

Nanoscience is all around

1. First nano-car race
2. Practice: March – July 2016

- NanoMobile club
  CEMES-CNRS (France)

- Nanocar Team
  Rice (USA) & Graz (Austria) Universities

- Nano-windmill Compagny
  Dresden Technical University (Germany)

- MANA-NIMS
  Nano-Vehicle (Japan)

- Ohio Bobcat
  nanowagon team
  Ohio University (USA)
Nanoscience is all around

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http://www.nims.go.jp/mana/moleculecarrace/
Nanodevices will increasingly be designed and prototyped on computers
MACRO Technology: from schematics...
MACRO Technology: ...to virtual prototypes
NANO Science / Technology needs virtual prototyping

Modeling

Simulation
SAMSON
Software for Adaptive Modeling and Simulation Of Nanosystems
Thanks! Thanks for your attention!

Email – stephane.redon@inria.fr
NANO-D – http://team.inria.fr/nano-d
SAMSON – http://www.samson-connect.net