# The 43rd iCeMS SEMINAR

## 2010 1.26 (火) 16:00-17:30

### 講演者: Alexander I. Kolesnikov, Ph.D.

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#### 演 題: Neutron Scattering Studies of Water Confined in Nano-channels

#### 場 所: 京都大学 アイセムス本館 2階 (東-条北西角) セミナー室 (A207)

A new form of water has been discovered by Dr. Kolesnikov. Called nanotube water, these molecules contain two hydrogen atoms and one oxygen atom but do not turn into ice - even at temperatures near absolute zero.

The infiltration of water into carbon nanotubes provides a simple analogue of biologically important trans-membrane channels and so is of large interdisciplinary scientific interest. The structure and dynamics of water/ice confined to the 1-Dimensional nanotube interior are found to be drastically altered with respect to bulk water.

京都大学物質-細胞統合システム拠点(iCeMS=アイセムス)

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Image by Christian J. Burnham, University of Houston.

主 催: 連絡先: NANO-WATER – New form of water in a nanotube. Water behaves differently when confined inside a long, narrow nanotube. The copper-colored exterior rings represent the carbon nanotube 1.4 nanometers across. The red and white interior cylinder is an icy wall with permanent hydrogen bonds shown in red; white represents oxygen. The interior chain is in constant motion. Yellow represents the hydrogen in the chain.



Courtesy: Alexander I. Kolesnikov

WEAK AND STRONG BONDS – This view of nanotube water shows its strong and weak bonds. The red and white icy exterior wall has permanent bonds shown by the red lines. The interior chain is constantly in motion and its green chains represent temporary, weak

bonds.





