Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Coulombic dragging of molecular assemblies on nanotubes PETR KRAL, KYAW SINT, BOYANG WANG, University of Illinois at Chicago — We show by molecular dynamics simulations that polar molecules, ions and their assemblies could be Coulombically dragged on the surfaces of single-wall carbon and boron-nitride nanotubes by ionic solutions or individual ions moving inside the nanotubes [1,2]. We also briefly discuss highly selective ionic sieves based on graphene monolayers with nanopores [3]. These phenomena could be applied in molecular delivery, separation and desalination.

[1] Boyang Wang and Petr Kral, JACS 128, 15984 (2006).
[2] Boyang Wang and Petr Kral, Phys. Rev. Lett. 101, 046103 (2008).
[3] Kyaw Sint, Boyang Wang and Petr Kral, JACS, ASAP (2008).

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Date submitted: 24 Nov 2008 Electronic form version 1.4