

Abstract Submitted
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Carbon-based ion and molecular channels KYAW SINT, BOYANG WANG, PETR KRAL, University of Illinois at Chicago, PROF. KRAL'S RESEARCH GROUP TEAM — We design ion and molecular channels based on layered carbonaceous materials, with chemically-functionalized pore entrances. Our molecular dynamics simulations demonstrate that these ultra-narrow pores, with diameters around 1 nm, are highly selective to the charges and sizes of the passing (Na^+ and Cl^-) ions and short alkanes. We demonstrate that the molecular flows through these pores can be easily controlled by electrical and mechanical means. These artificial pores could be integrated in fluidic nanodevices and lab-on-a-chip techniques with numerous potential applications. [1] Kyaw Sint, Boyang Wang and Petr Kral, submitted. [2] Boyang Wang and Petr Kral, JACS 128, 15984 (2006).

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