

Abstract Submitted  
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**Molecular propellers and tunneling-driven motors** LELA VUKOVIC, BOYANG WANG, PETR KRAL, University of Illinois at Chicago, PROF. KRAL'S RESEARCH GROUP TEAM — We design molecular propellers with carbon nanotube rotors and aromatic blades that allow selective pumping of hydrophobic and hydrophilic liquids [1]. Our molecular dynamics studies show that the pumping efficiency strongly depends on the chemistry of the liquid-blade interface. We also discuss several prototypes of highly efficient molecular motors driven by electron tunneling that could drive such rotary molecular machines [2]. These systems might pump liquids and provide motility at the nanoscale. [1] B. Wang and P. Král, Phys. Rev. Lett. 98, 266102 (2007). [2] L. Vukovic, B. Wang and P. Král, submitted.

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