

Abstract Submitted
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Optical, Mechanical, and Opto-Mechanical Switching of Anchored Dithioazobenzene Bridges IVAN STICH, ROBERT TURANSKY, Inst. of Phys., Slovak Academy of Sciences, Bratislava, Slovakia, MARTIN KONOPKA, Slovak University of Technology (FEI STU), NIKOS DOLTSINIS, Dept. of Physics, Kings College London, U.K., DOMINIK MARX, Ruhr-Universitaet Bochum, Germany — The ability of anchored photochromic molecules to perform optically, mechanically, and opto-mechanically driven switching cycles is studied using electronic structure methods. As a model for such nanoscale devices we have simulated molecular switches consisting of single dithioazobenzene bridges between gold tips. Purely optical switching cycles are hindered by mechanical effects due to the tips. However, the possibility to perform both combined opto-mechanical and purely mechanical two-way switching is predicted. The simulations help to elucidate also the role played by mechanical and chemical effects due to anchoring. Possible experimental realization of such devices will also be mentioned.

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