

Abstract Submitted  
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**System size scan of heavy flavor  $R_{AA}$  and  $v_n$  using PbPb, XeXe, ArAr, and OO collisions** ROLAND KATZ, Subatech Nantes, JACQUELYN NORONHA-HOSTLER, University of Illinois Urbana-Champaign, CAIO PRADO, Central China Normal University, ALEXANDRE SUAIDE, University of So Paulo — Experimental measurements indicate no suppression (e.g.  $R_{pPb} \sim 1$ ) but a surprisingly large D meson  $v_2$  was measured in pPb collisions. In order to understand these results we use Trento+v-USPhydro+DAB-MOD to make predictions and propose a system size scan at the LHC involving  $^{208}\text{PbPb}$ ,  $^{129}\text{XeXe}$ ,  $^{40}\text{ArAr}$ , and  $^{16}\text{OO}$  collisions. Whatever the chosen transport model, we find that the nuclear modification factor approaches unity as the system size is decreased, but nonetheless, in the 0-10% most central collisions  $v_2\{2\}$  is roughly equivalent regardless of system size. These results arise from a rather non-trivial interplay between the shrinking path length and the enhancement of eccentricities in smaller systems. Finally, we also find a surprising sensitivity of D mesons  $v_2\{2\}$  in 0-10% centrality class at  $p_T = 2 - 10$  GeV to the slight deformation of  $^{129}\text{Xe}$  recently found at LHC.

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