## Multi-players $M\!=\!9$ : Cumulated centralized regret, averaged 40 times 9 arms: $[B(0.01)^*, B(0.01)^*, B(0.01)^*, B(0.11)^*, B(0.12)^*, B(0.14)^*, B(0.16)^*, B(0.18)^*,$

 $B(0.2)^*$  $10^{5}$ 10<sup>2</sup> Cumulative centralized regret  $\sum_{k=1}^9 \mu_k^* t - \sum_{k=1}^9 \mu_k \mathbb{E}_{40}[T_k(t)]$  $\longrightarrow$  SIC-MMAB(UCB-H,  $T_0 = 265$ ) SIC-MMAB(UCB,  $T_0 = 265$ ) SIC-MMAB(kl-UCB,  $T_0 = 265$ ) RhoRand-UCB RhoRand-kl-UCB RandTopM-UCB RandTopM-kl-UCB MCTopM-UCB MCTopM-kl-UCB Selfish-UCB Selfish-kl-UCB CentralizedMultiplePlay(UCB) 10<sup>-7</sup> CentralizedMultiplePlay(kl-UCB) MusicalChair( $T_0 = 450$ ) MusicalChair( $T_0 = 900$ ) MusicalChair( $T_0 = 1350$ ) 10-10 Besson & Kaufmann lower-bound =  $0 \log(t)$ Anandkumar et al.'s lower-bound =  $0 \log(t)$ •••• Centralized lower-bound =  $0 \log(t)$ 10<sup>-13</sup> 10<sup>2</sup>  $10^{3}$  $10^{4}$ Time steps t = 1...T, horizon T = 50000,