## Cumulated regrets for different bandit algorithms, averaged 1000 times

9 arms:  $[B(0.1), G(0.1, 0.05), \operatorname{Exp}(10, 1), B(0.5), G(0.5, 0.05), \operatorname{Exp}(1.59, 1), B(0.9)^*, G(0.9, 0.05)^*, \operatorname{Exp}(0.215, 1)^*]$ 10<sup>2</sup> Cumulated regret  $R_t = t \mu^*$  $10^{1}$  $\longrightarrow$  Aggregator(N=6)  $\sim$  Exp4(N=6)  $\longrightarrow$  CORRAL(N=6, broadcast to all) LearnExp(N=6,  $\eta=0.9$ )  $\rightarrow$  UCB ( $\alpha = 1$ ) Thompson → KL-UCB(Bern)  $10^{0}$ KL-UCB(Exp) → KL-UCB(Gauss) → BayesUCB Lai & Robbins lower bound =  $7.39e + 07 \log(T)$ 2500 5000 7500 10000 15000 17500 20000 12500 Time steps t = 1...T, horizon T = 20000