Multi-players $M = 9$: Cumulated centralized regret, averaged 1000 times
9 arms: $[B(0.1)^*, B(0.2)^*, B(0.3)^*, B(0.4)^*, B(0.5)^*, B(0.6)^*, B(0.7)^*, B(0.8)^*, B(0.9)^*]$

Cumulative centralized regret $\mathbb{E}_{1000}[R_t]$

- Cumulated centralized regret
- (a) term: Pulls of 0 suboptimal arms (lower-bounded)
- (b) term: Non-pulls of 9 optimal arms
- (c) term: Weighted count of collisions
- Our lower-bound $= 0 \log(t)$
- Anandkumar et al.'s lower-bound $= 0 \log(t)$
- Centralized lower-bound $= 0 \log(t)$

Time steps $t = 1 .. T$, horizon $T = 10000$, 9 players: $9 \times$ Selfish-KLUCB