Online Optimization with $b_k = \text{sine} + \text{ramp for Different Window Sizes}$ Online gradient 10^{2} Control-based (Original) **ARM No Window** ARM Window Size 5 10⁰ ARM Window Size 10 Fracking error ARM Window Size 15 10^{-2} ARM Window Size 20 ARM Window Size 25 ARM Window Size 30 10^{-4} 10^{-6} 10^{-8} 10^{-10} 0 25 50 75 100 125 150 175 200 Time