

Required Fix:

- Derive explicit convergence rate under strong convexity (e.g., exponential rate)
- Analyze discretization error for practical implementation
- Compare iteration complexity with ADMM, subgradient, cutting plane methods
- Provide computational complexity comparison table

5) Assumptions are Overly Restrictive

Location: Assumption 1 (lines 257-260), Assumption 2 (lines 267-276), Assumption 3 (lines 327-329)

Problem:

Assumption 1: Requires $f_0(x, u_0)$ strictly convex in x for ANY u_0 , and C^1 with locally Lipschitz gradients.

Fails for:

- Affine costs: $\min c^\top x$ (NOT strictly convex)
- Non-smooth uncertainty: $\|u\|_\infty \leq 1$
- Practical applications: portfolio optimization with linear returns, hinge loss, ℓ_1 penalties

Assumption 2 (Slater): Requires strict feasibility for BOTH levels.

Fails for:

- Boundary-active problems ($x \geq 0$ constraints at optimum)
- Polyhedral uncertainty sets (no strict interior for lower-dimensional faces)
- Equality constraints (Slater never holds)

Assumption 3: Requires $c_i > 0$ but gives NO guidance except "use 10^{-6} " (line 332).

Critical questions unanswered:

- How to choose c_i for specific problems?
- How does c_i affect convergence rate?
- Section VI proves convergence as $c_i \rightarrow 0$, but how fast? $\mathcal{O}(c_i)$? $\mathcal{O}(\sqrt{c_i})$?

Required Fix:

- Provide examples where assumptions hold/fail
- Discuss alternative constraint qualifications (MFCQ, LICQ, Abadie)
- Give practical parameter selection guidance
- Analyze convergence rate dependence on c_i

MODERATE ISSUES (Require Major Revision)

resume

1) Lyapunov Function Construction is Not Novel

Location: Lemma 3 (lines 571-640)

Problem: The Lyapunov function (Equation 28) is a **standard weighted quadratic** for primal-dual systems. The only modification is using λ_i^* (optimal dual) instead of λ_i in weights. Arrow-Hurwicz-Uzawa (1958) and Feijer & Paganini (2010) used nearly identical constructions.

Required Fix: Clearly state what IS novel (if anything), compare with existing constructions in a table.

2) Simulations Lack Rigor

Example A (Lines 1019-1084):

- Compares with 15-year-old scenario method [Calafiori 2004]
- Compares with CVX but doesn't report CVX's solution time
- Claims "exact solution" but shows 4-decimal agreement
- No integration time, number of steps, or tolerance settings reported

Example B (Lines 1086-1120):

- Claims "no closed-form RC exists" without thorough literature search
- Unfair comparison: CVX solves 1000 QPs exactly; ODE solver integrates with unknown accuracy
- No error bounds on ODE solution

Example C (Lines 1122-1176):

- No quantitative results (just qualitative description)
- No comparison with ANY baseline
- Real-time tracking claim unsupported (no time-varying experiment)

Critical Omissions:

- No large-scale examples ($n > 2$ dimensions!)
- No comparison with modern RO solvers (Mosek, Gurobi RO extensions)
- No comparison with recent methods: ADMM [Rostampour 2021], ROOT [Yazdani 2023]