



**ROOT CAUSE ANALYSIS: Why Greedy Sequential Fails at Separation**

1. DCT BIAS: DCT captures BOTH structure AND texture energy
2. GREEDY SUBTRACTION: DCT wins iteration 1, subtracts ALL energy
3. RFT STARVATION: RFT never claims its rightful atoms
4. RESULT: "DCT-First Codec" not true MCA separator

What WORKS: Total reconstruction (err ~0.05) - Good for COMPRESSION  
 What FAILS: Component isolation (RFT F1 ~0.05) - Bad for SEPARATION

**SOLUTION:** Replace greedy/parallel with L1-minimization (BPDN)  
 $\min ||s||_1 + ||t||_1 \text{ s.t. } ||x - (\Psi_S s + \Psi_T t)||_2 < \epsilon$