

TCS Optimization week 6 Update

Maple Matzner

UCR, LIGO SURF

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Timeline Progress:

- Week 3: Add thermal components to the IFO Simulations
- Week 4 & 5: start benchmarking the full-IFO models with optimization methods, PS and BO
- Week 6: Cont. previous step with BAX and other methods. Determine better strategies in constructing the cost-function

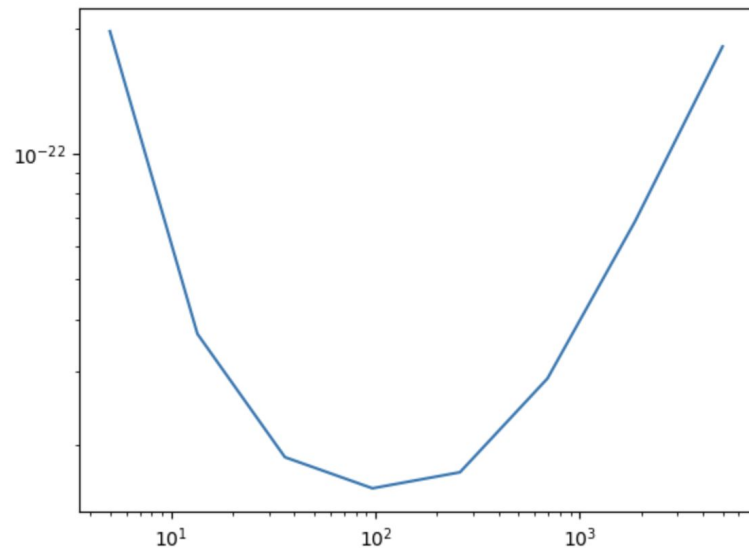
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Next week:

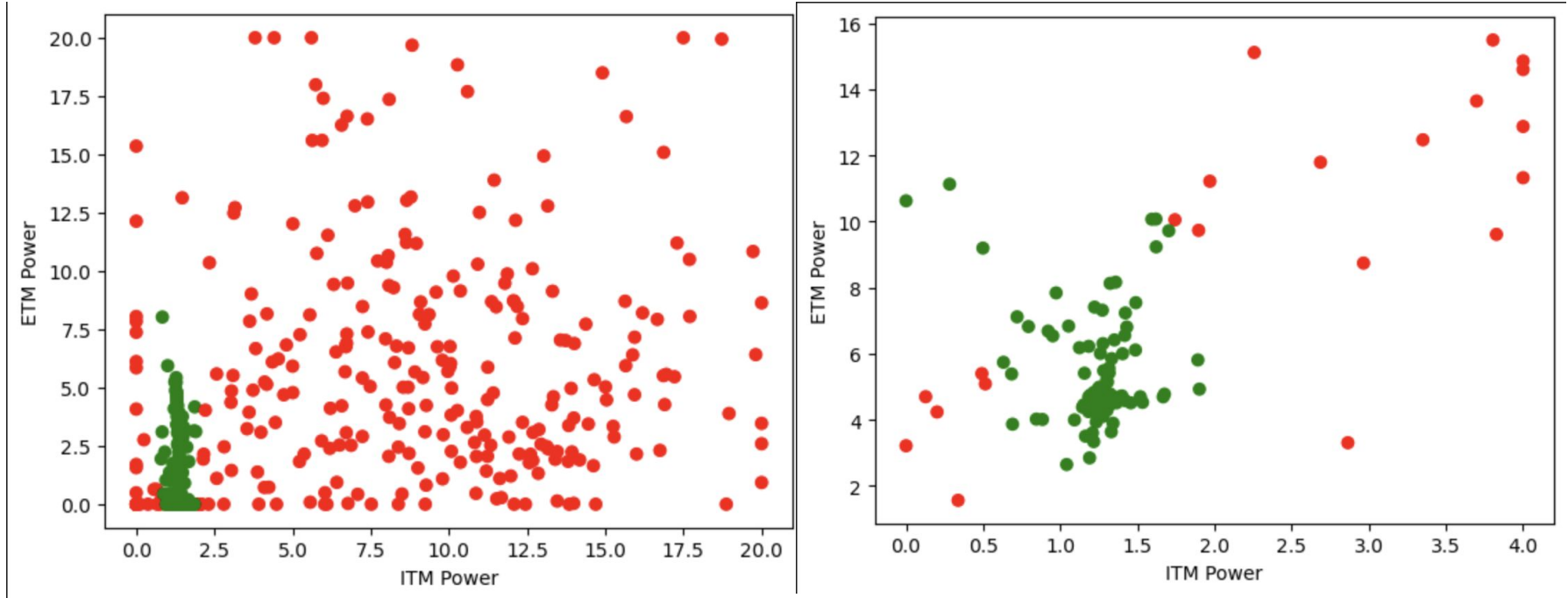
- Week 7: Implement surrogate-optimization loop models

Current cost function:

- Calculated as integral under the noise curve
- No observed narrow-banding so far
- Low frequency resolution to improve performance
- Can be easily modified to include surrounding points,
Parallel processing would make this pretty fast



Stable detector configurations seem to be in a set range:



Progress:

- Full aligo model runs well
- Have run preliminary benchmarks of particle swarm
- Have convergence conditions for both algorithms but could use some work
- Want to test other swarm based algorithms
- Some unsolved issues with thermal effects
- Interested in more robust benchmarking options
- Have benchmarker loop and csv structure to store benchmarking data
- Everything is running on megatron