

CENTER FOR POWER OPTIMIZATION OF ELECTRO-THERMAL SYSTEMS

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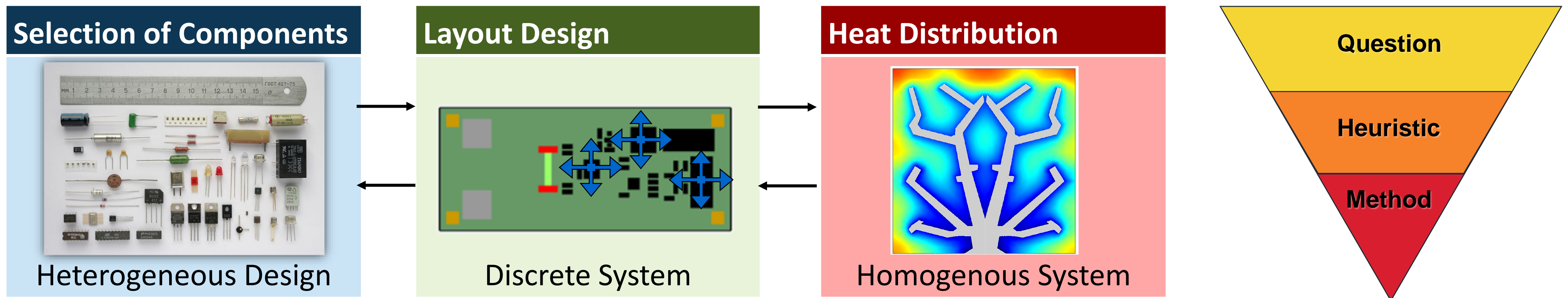
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Topology Optimization in Electro-Thermal Power Systems

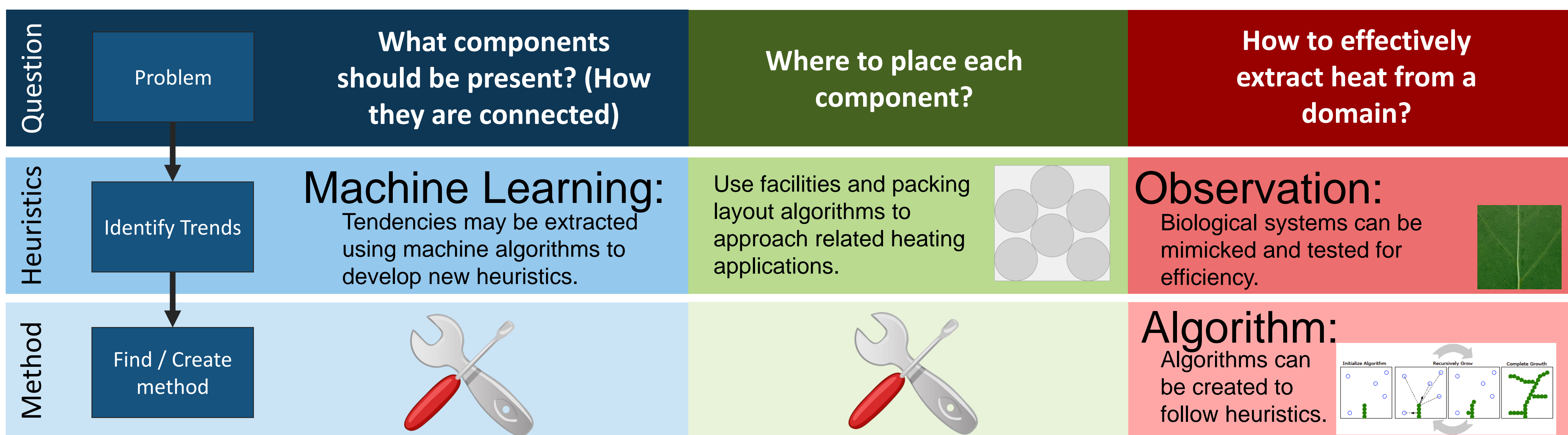
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How can topology optimization techniques be used to facilitate the design of homogeneous and heterogeneous electro-thermal systems?



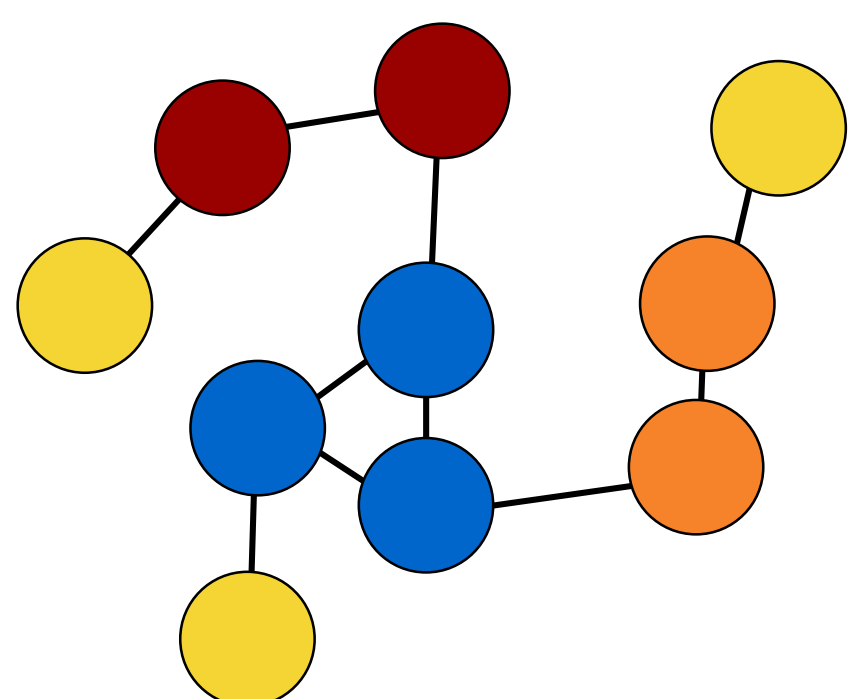
Vision: Generative algorithms will allow for relaxations in problem formulations resulting in targeted design space coverage.

Methodology and Approaches



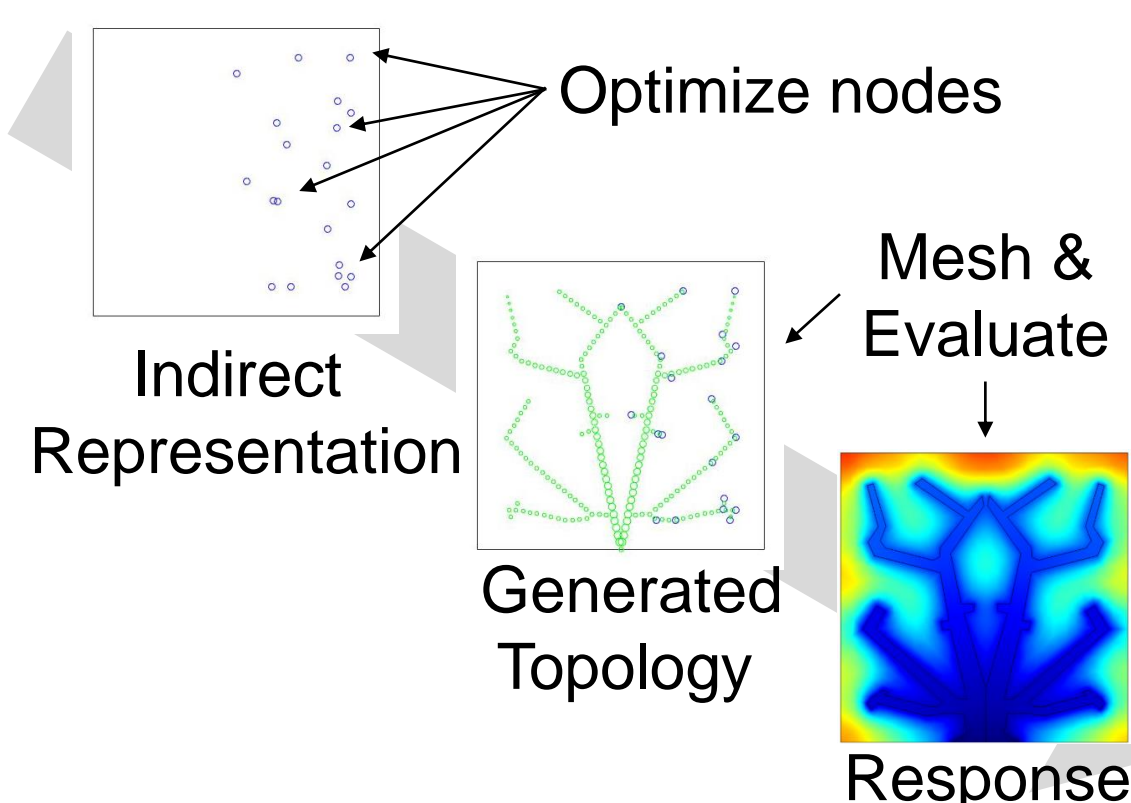
Main Results

Colored Graphs



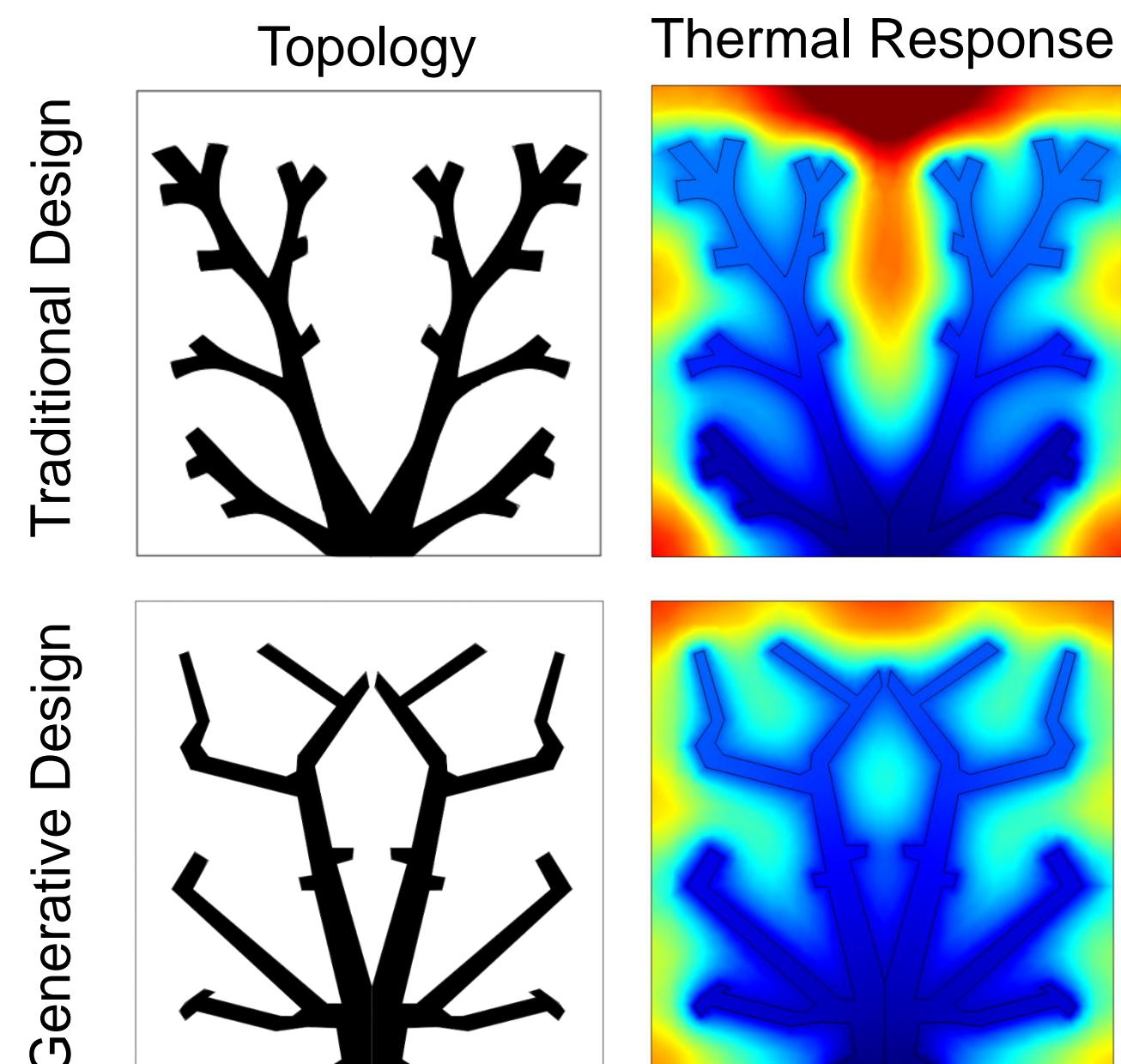
Colored graphs can be used to represent connected heterogeneous systems.
Large design space

Indirect Design Representation



Lowering the number of variables required to represent the design.
Targets search to dendritic structures.

Heat Spreader Design



Generative algorithm designed an improved heat spreader.
Thermal response shows lower heat on the domain.

Acknowledgements

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