Uncertainty Quantification for Electronic-System Design

Ivan Ukhov, Zebo Peng, and Petru Eles

Embedded Systems Laboratory
Software and Systems

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Uncertainty?

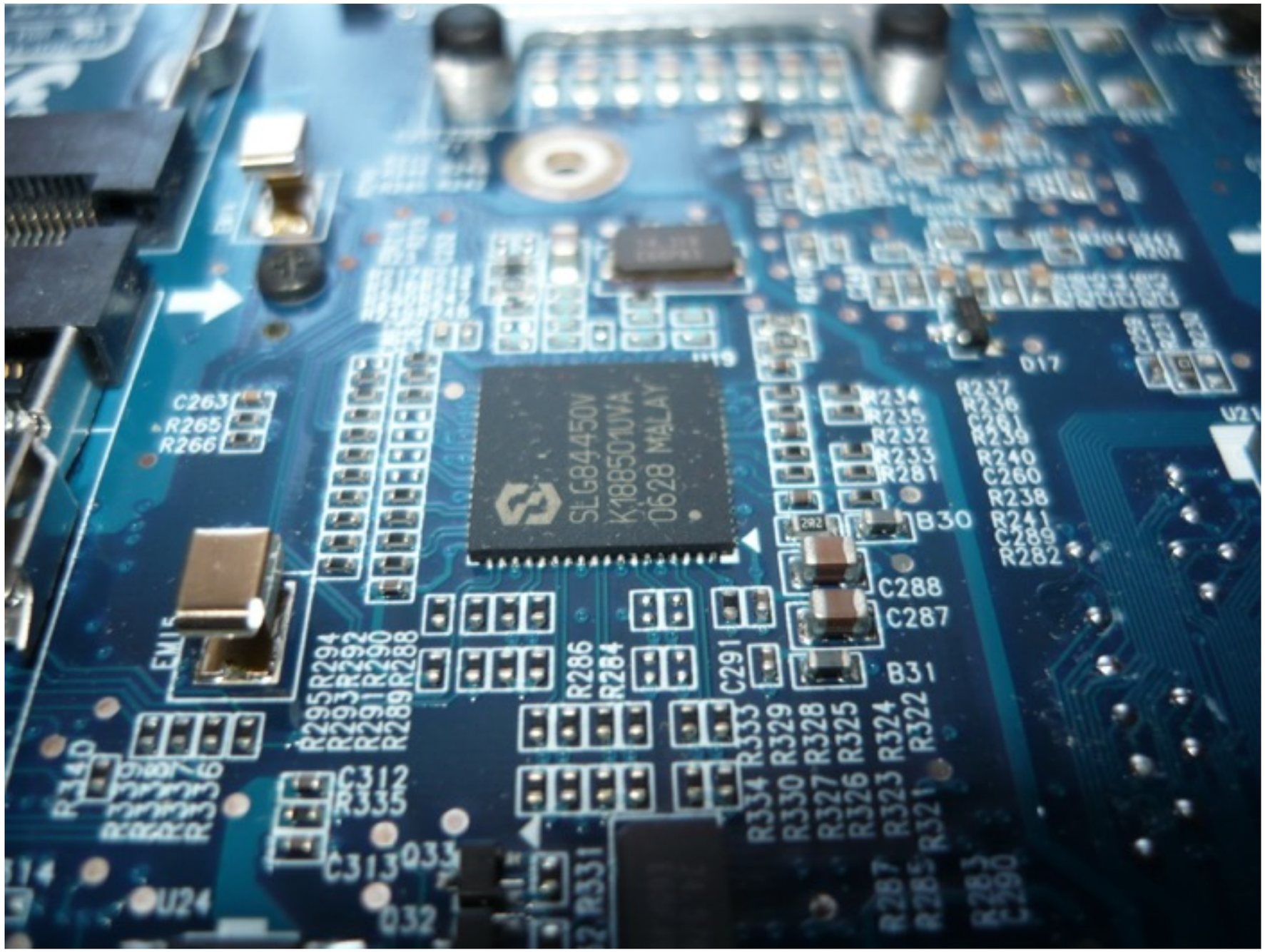


Photo: AAAndrey A, https://goo.gl/eFhcto

Uncertainty?

- Process variation
- Environment
- Workload
- Aging

Fabrication

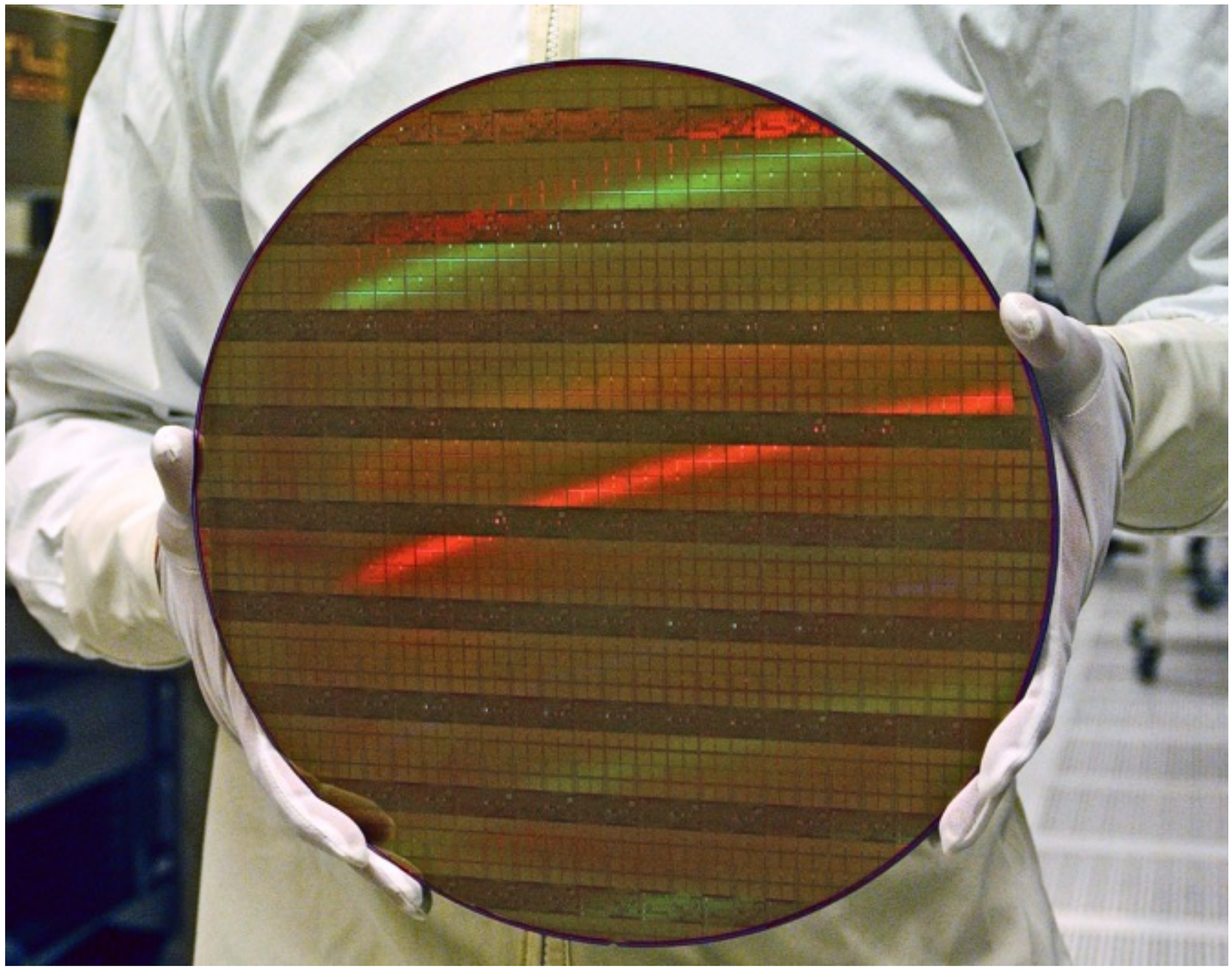
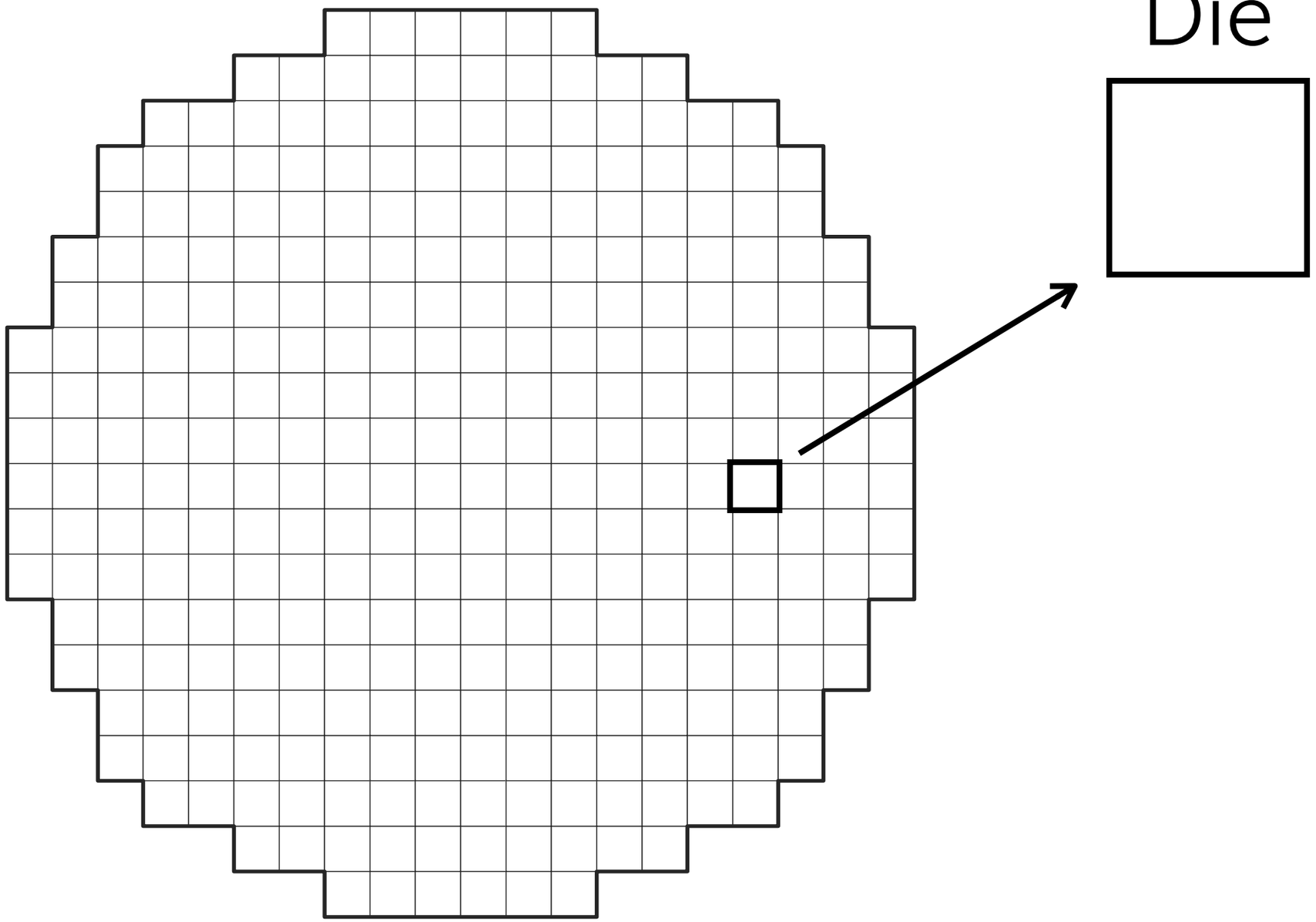


Photo: Intel, https://goo.gl/mHMxe1

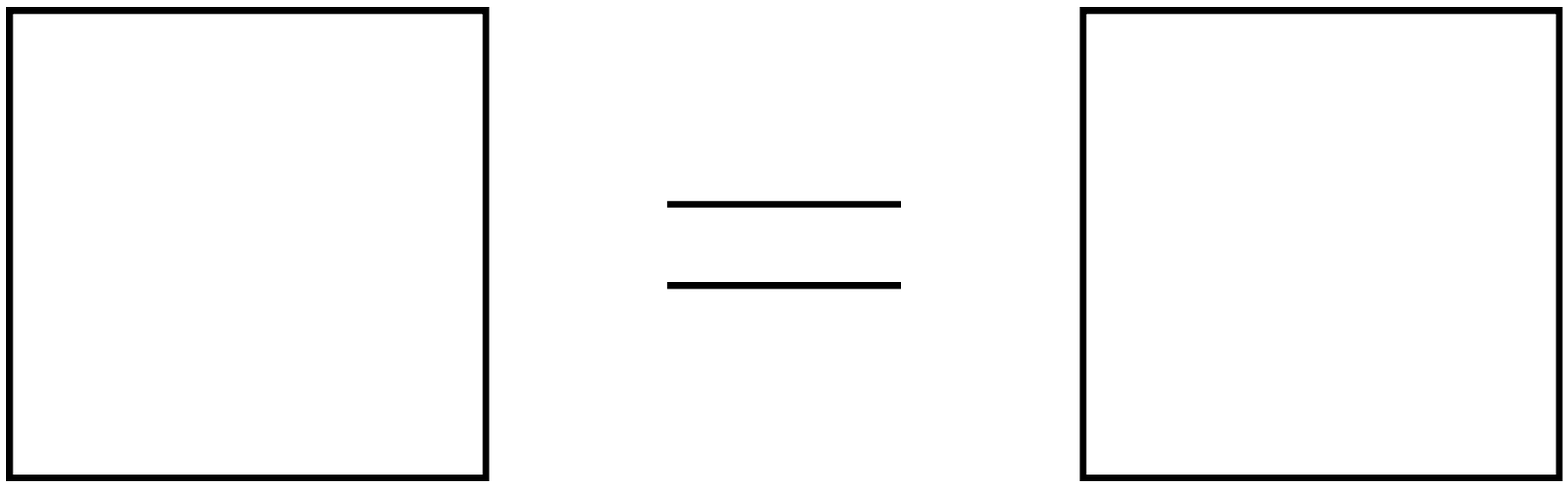
Fabrication

Wafer

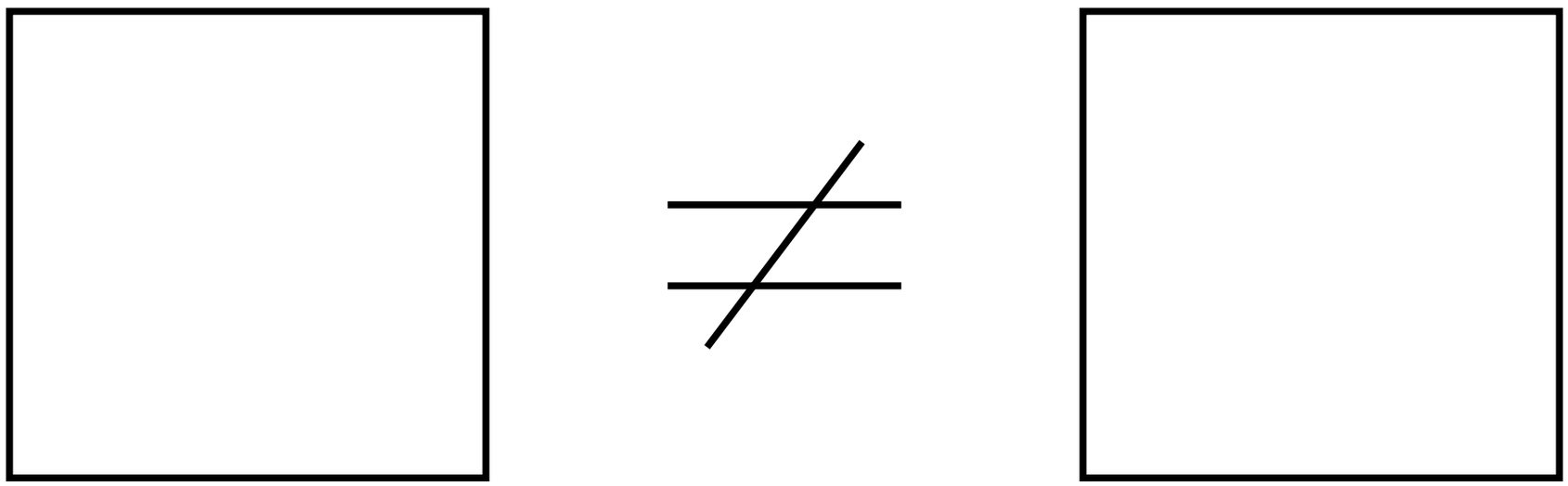


Die

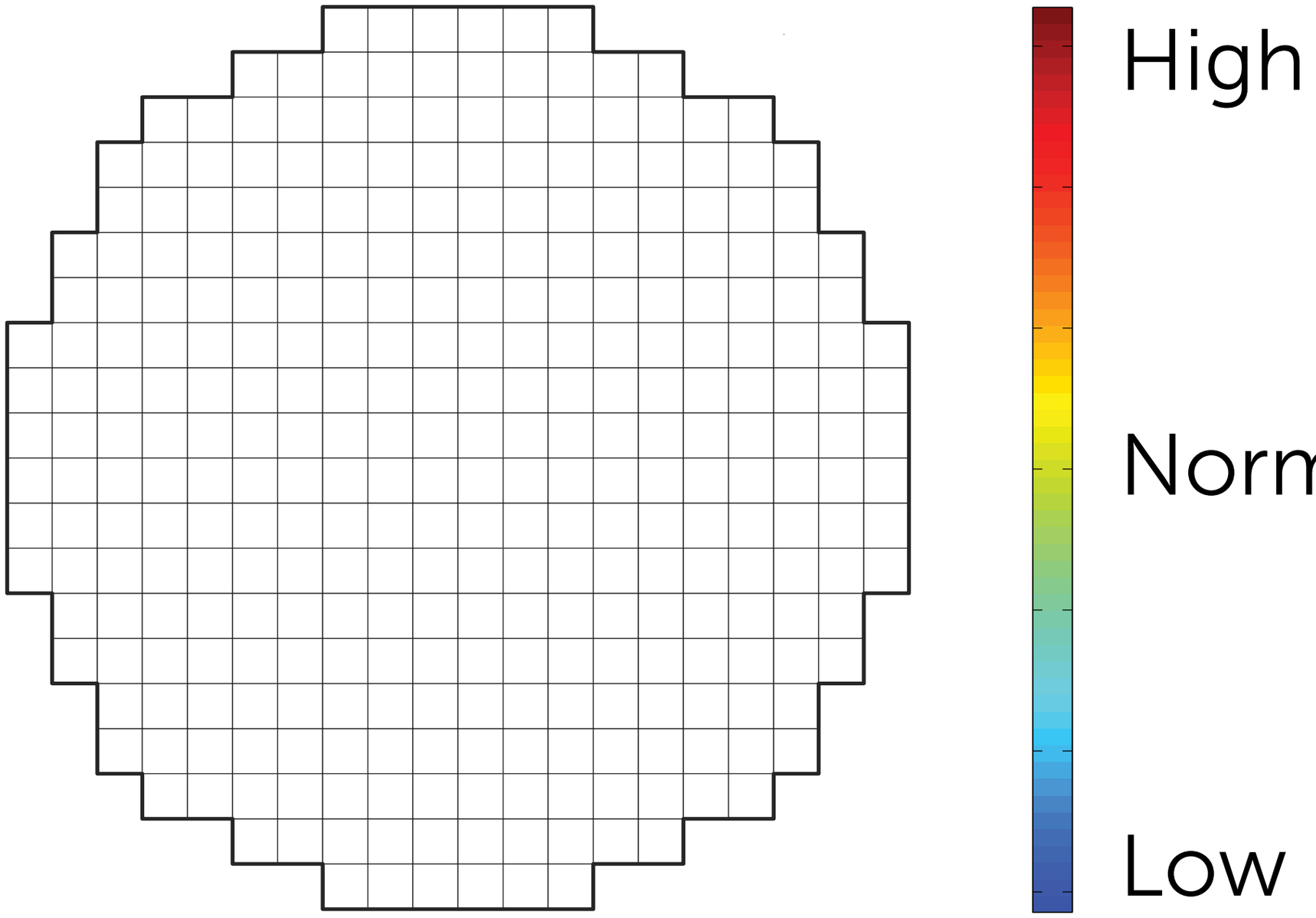
Process Variation



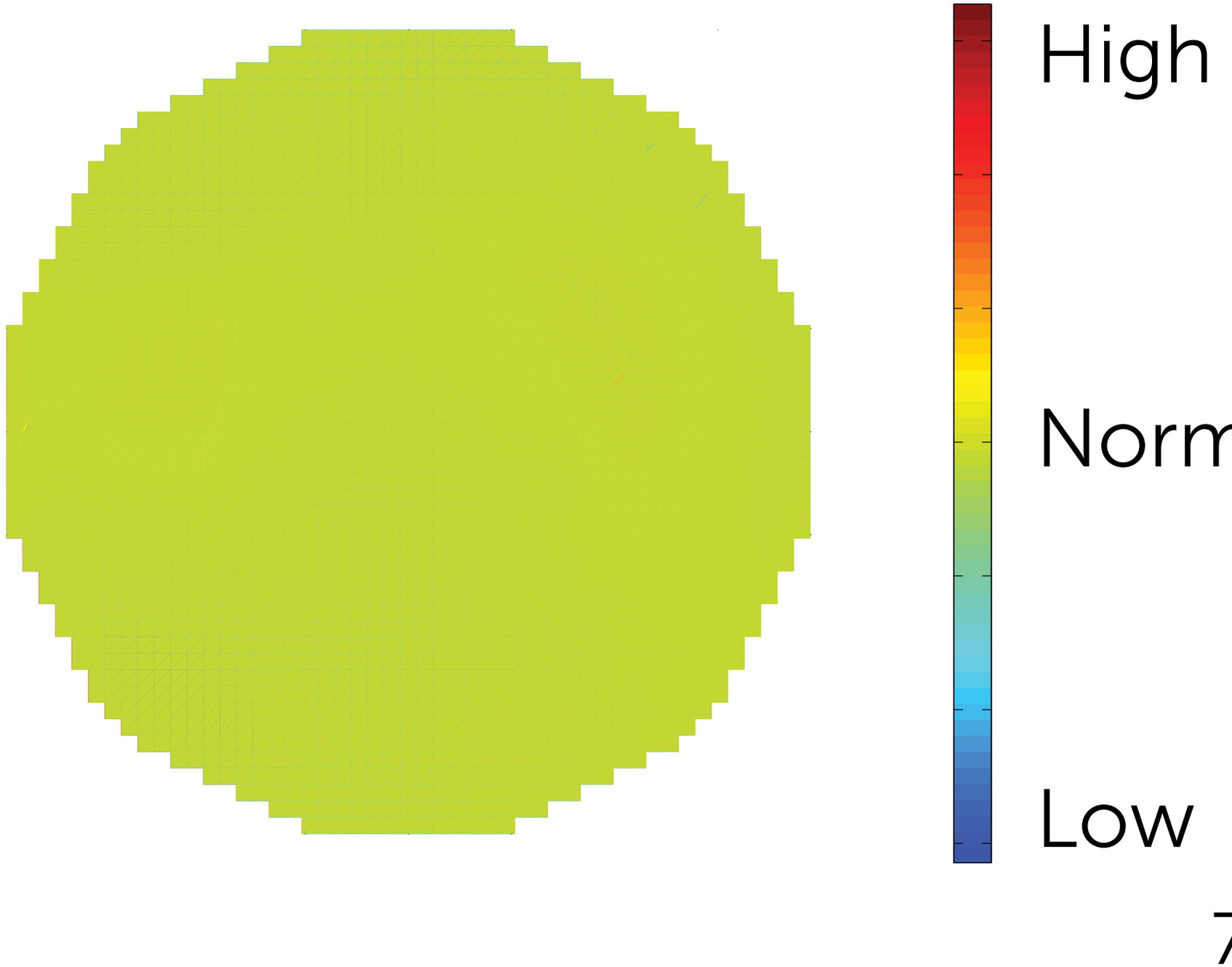
Process Variation



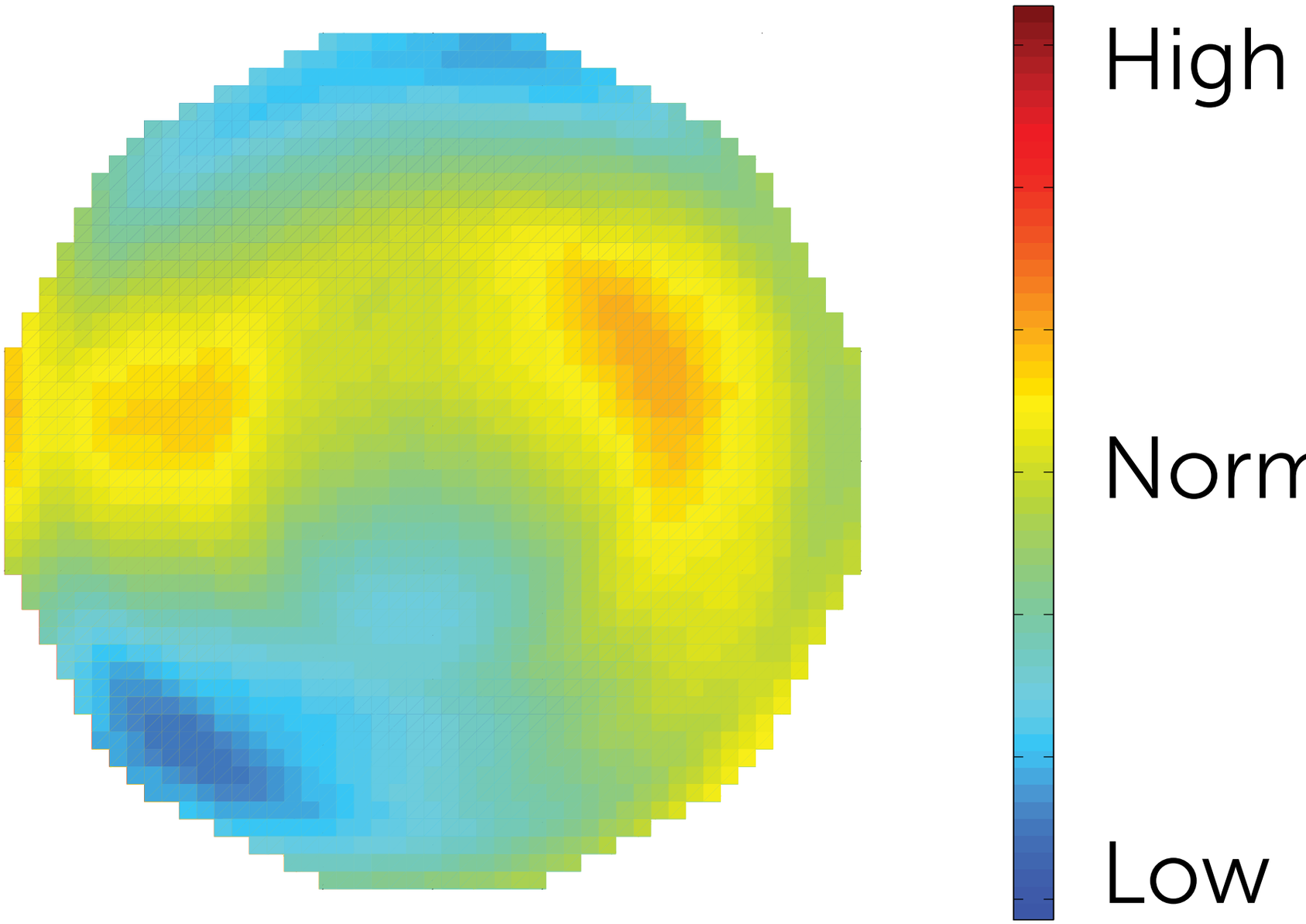
Process Variation



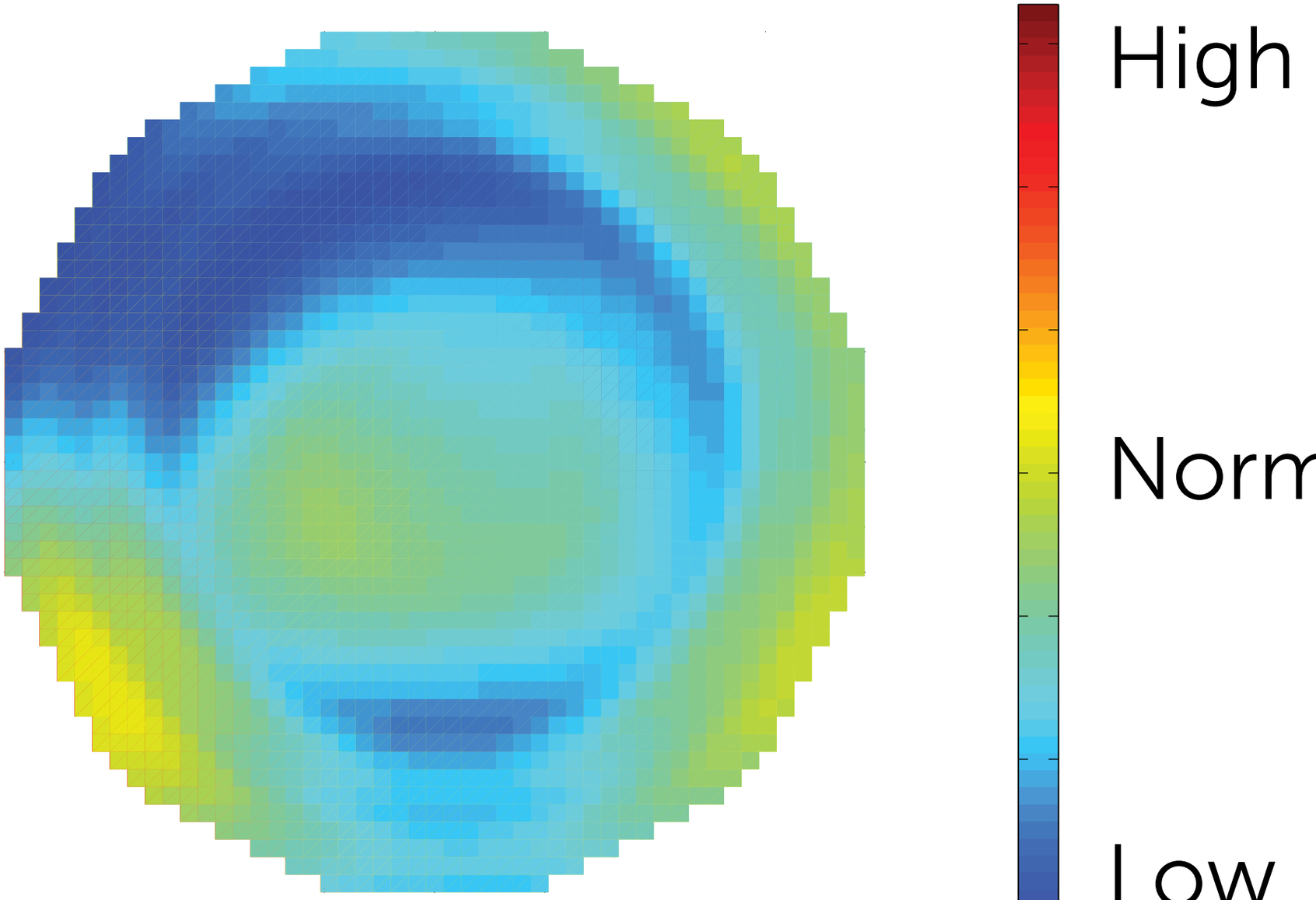
Process Variation



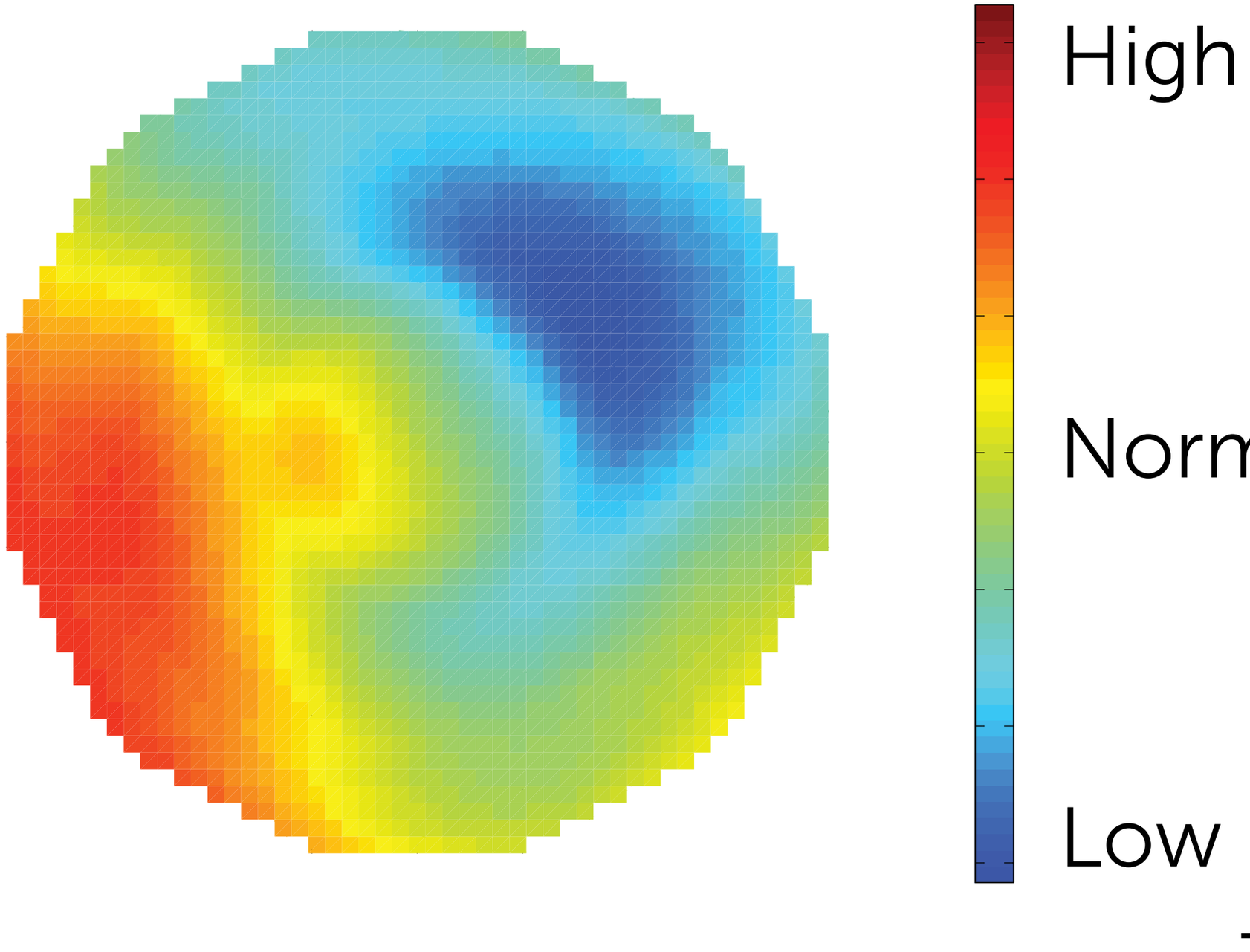
Process Variation



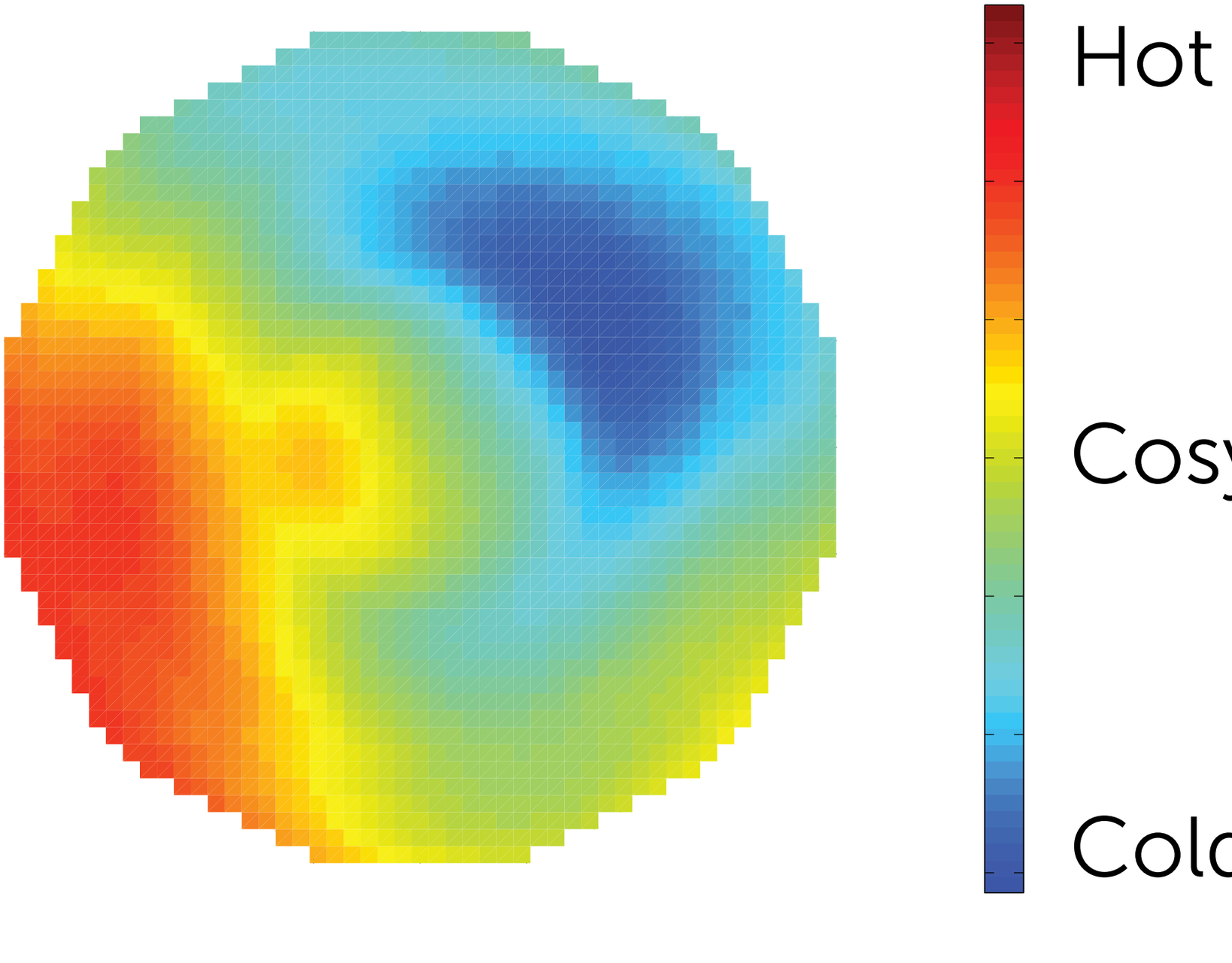
Process Variation



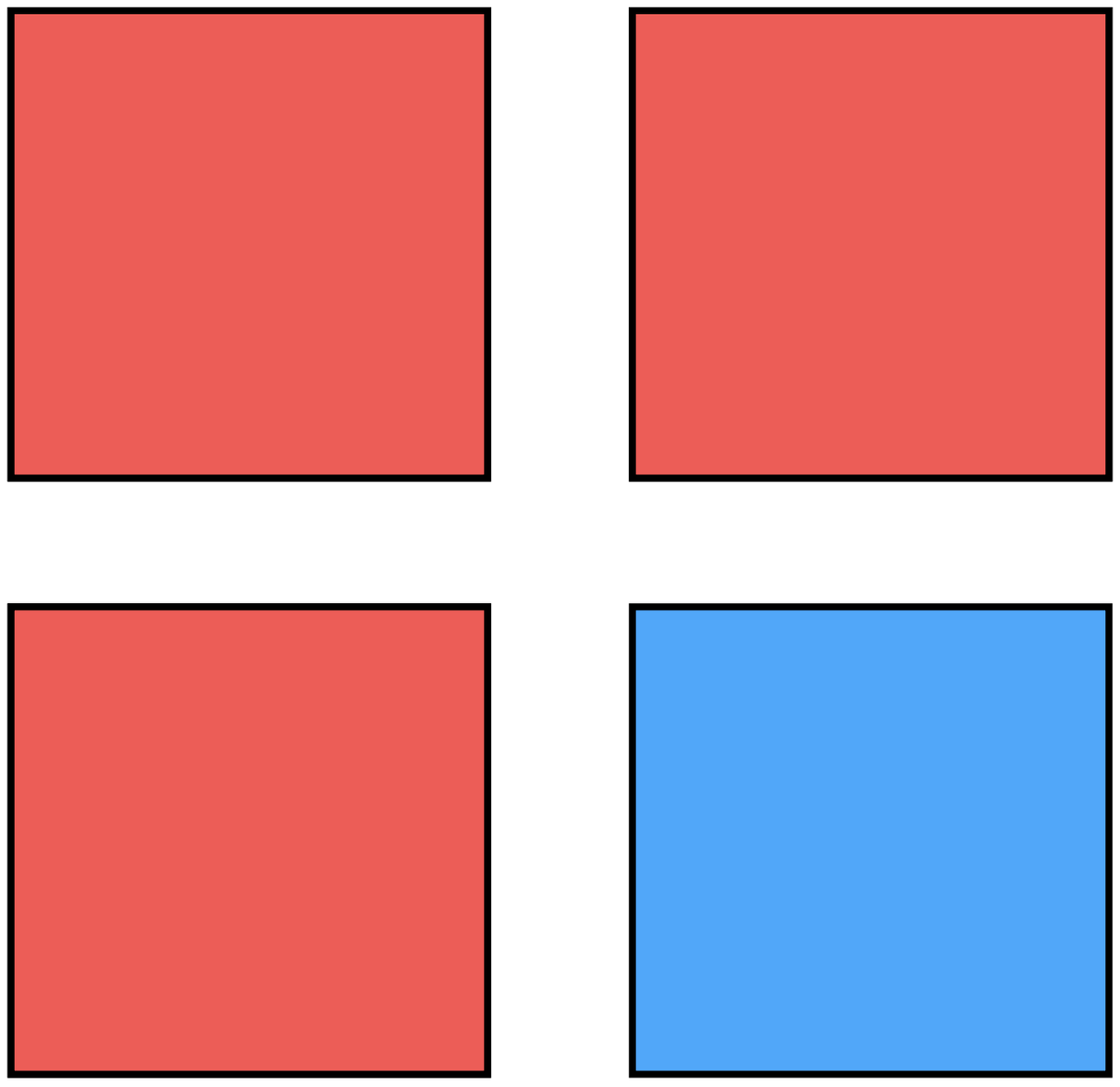
Process Variation



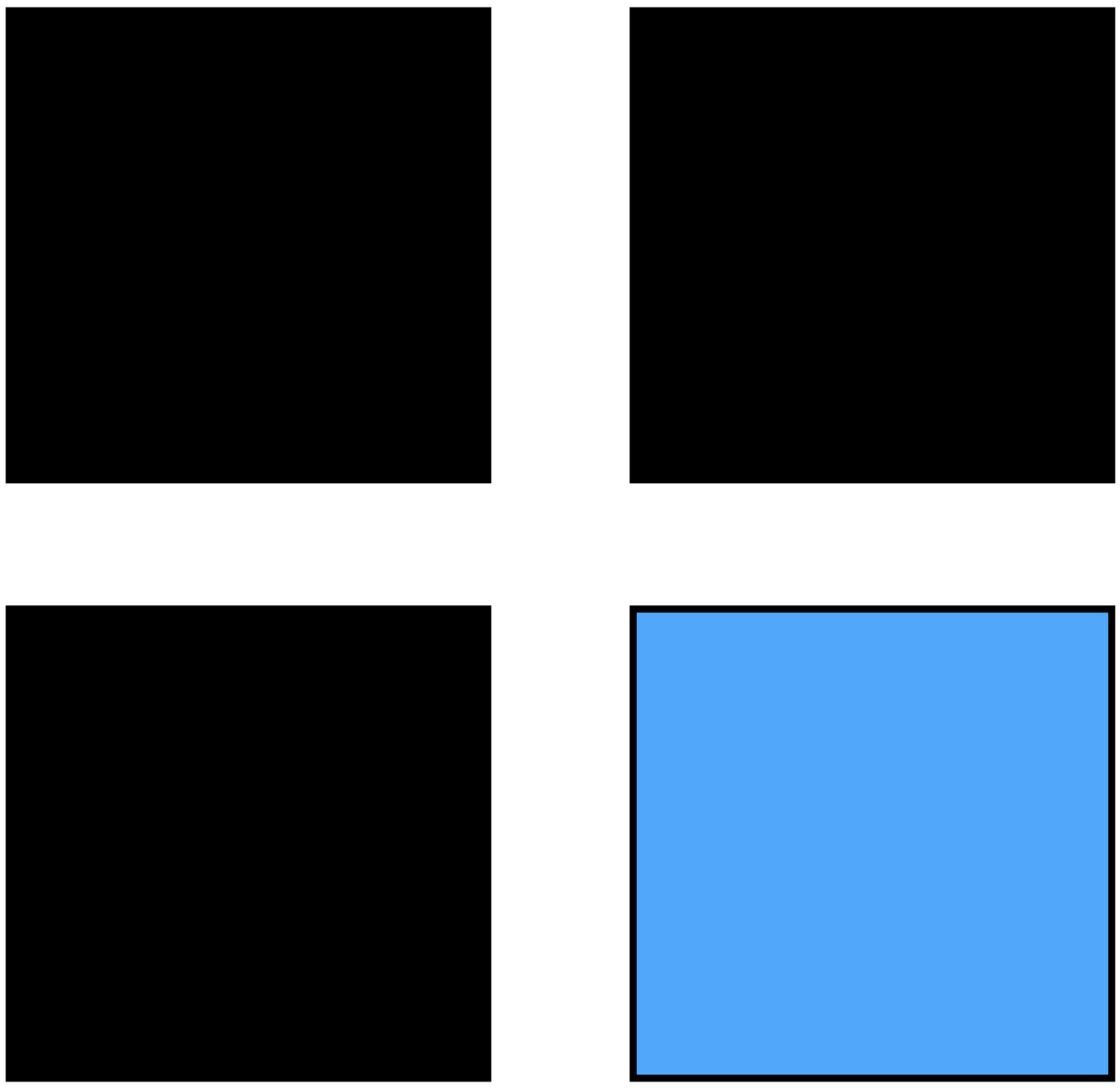
Temperature



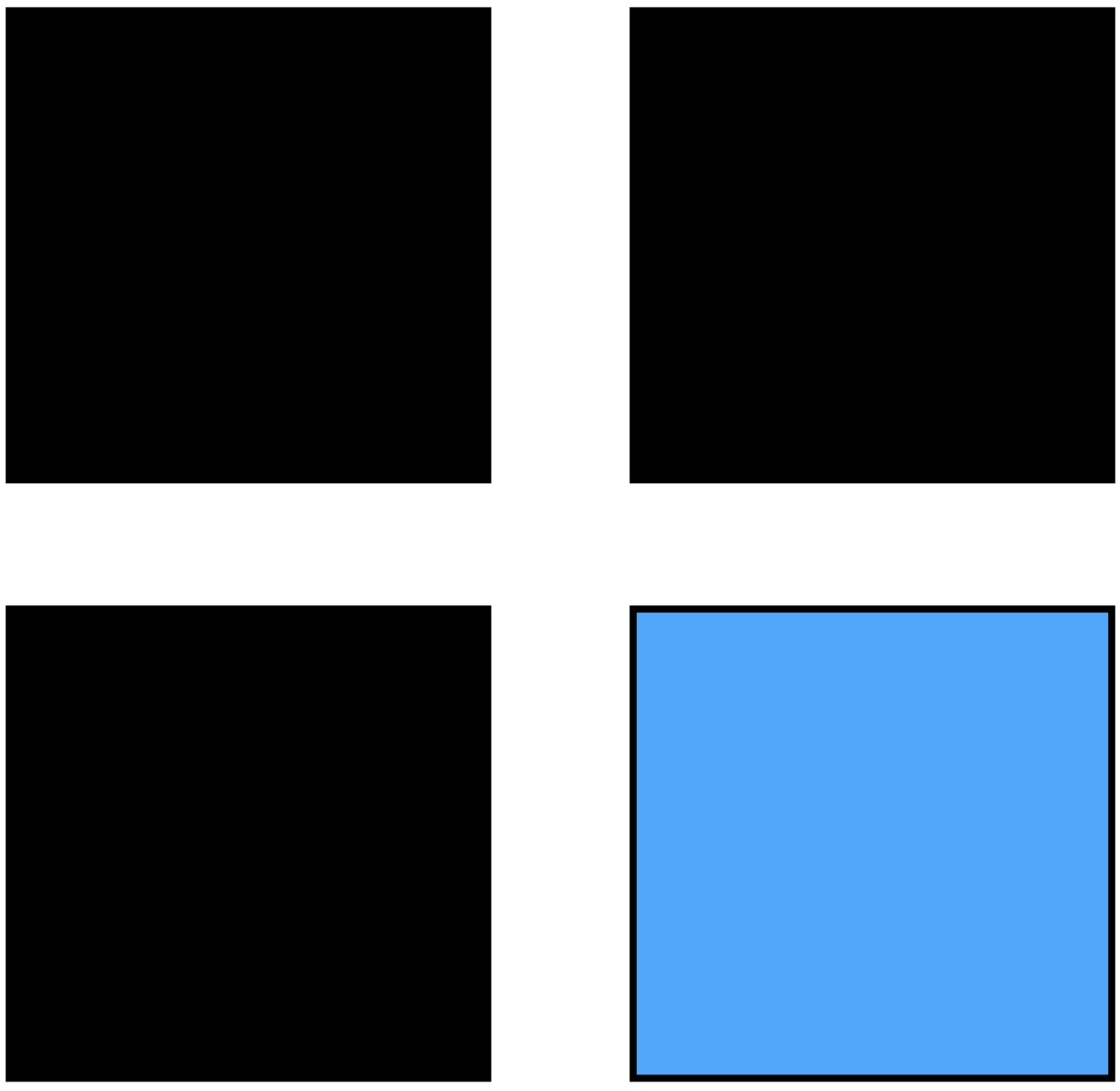
Temperature



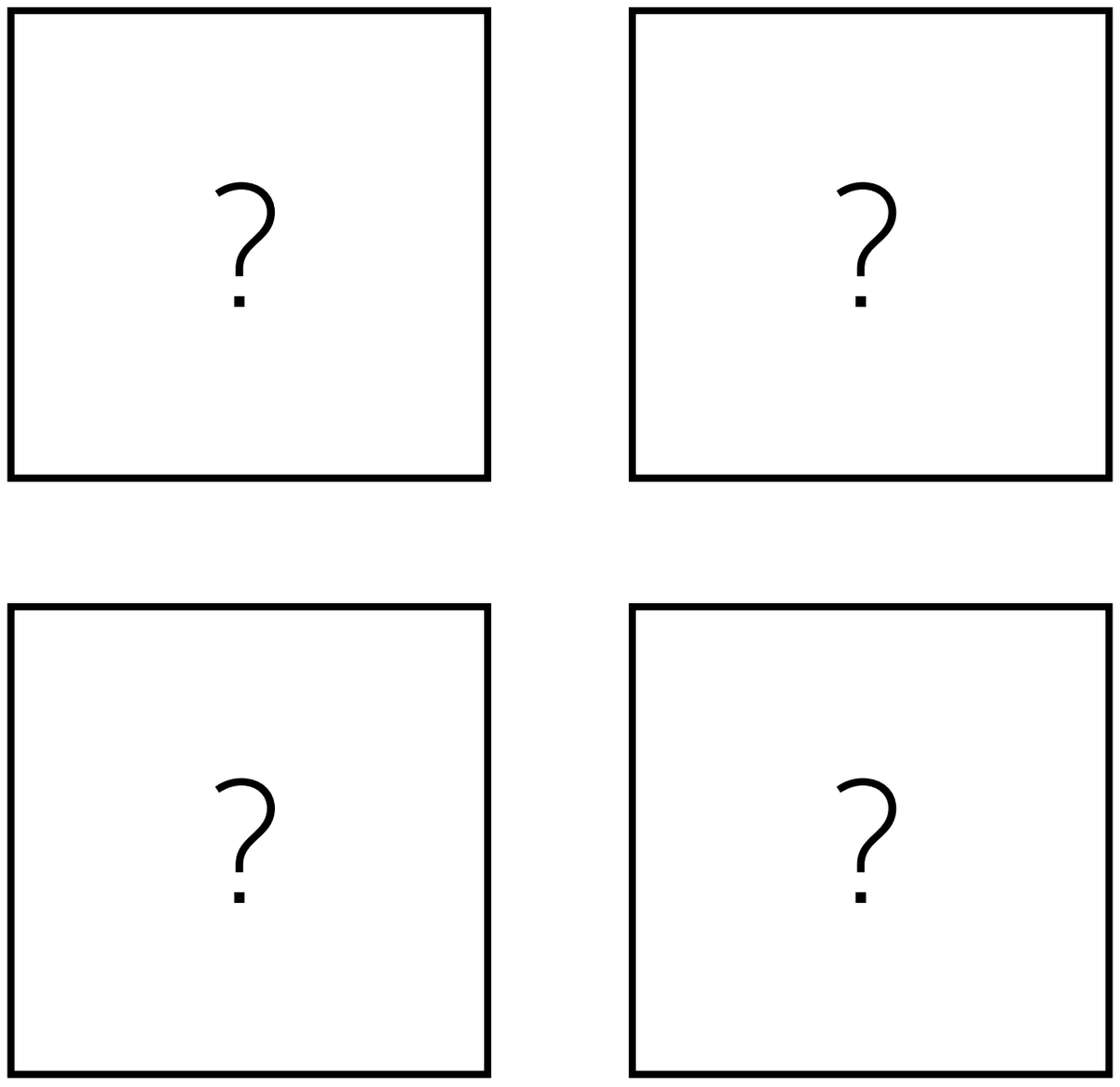
Temperature



Uncertainty



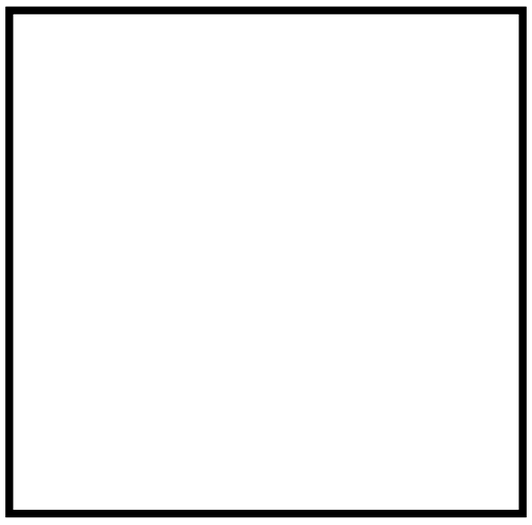
Uncertainty



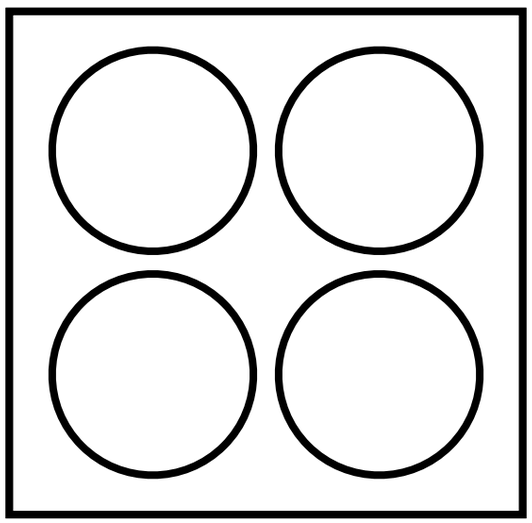
Our Work

- Accurate and efficient characterization of uncertainty

Electronic System

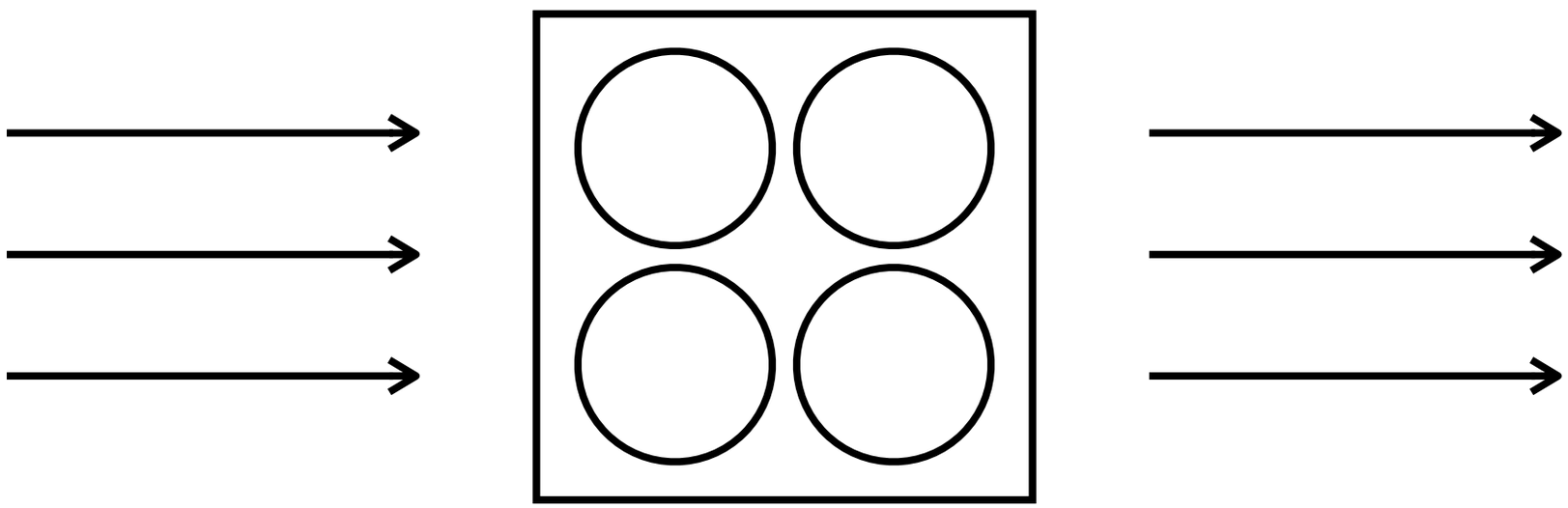


Electronic System

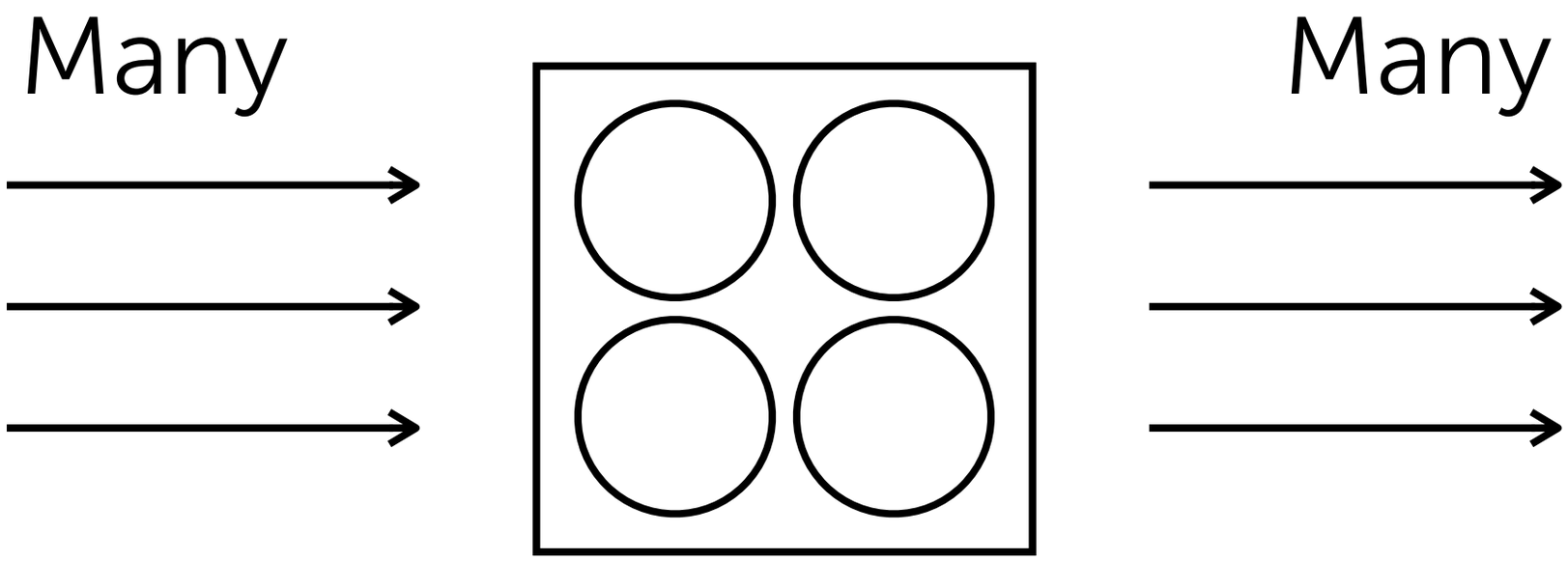


Electronic System

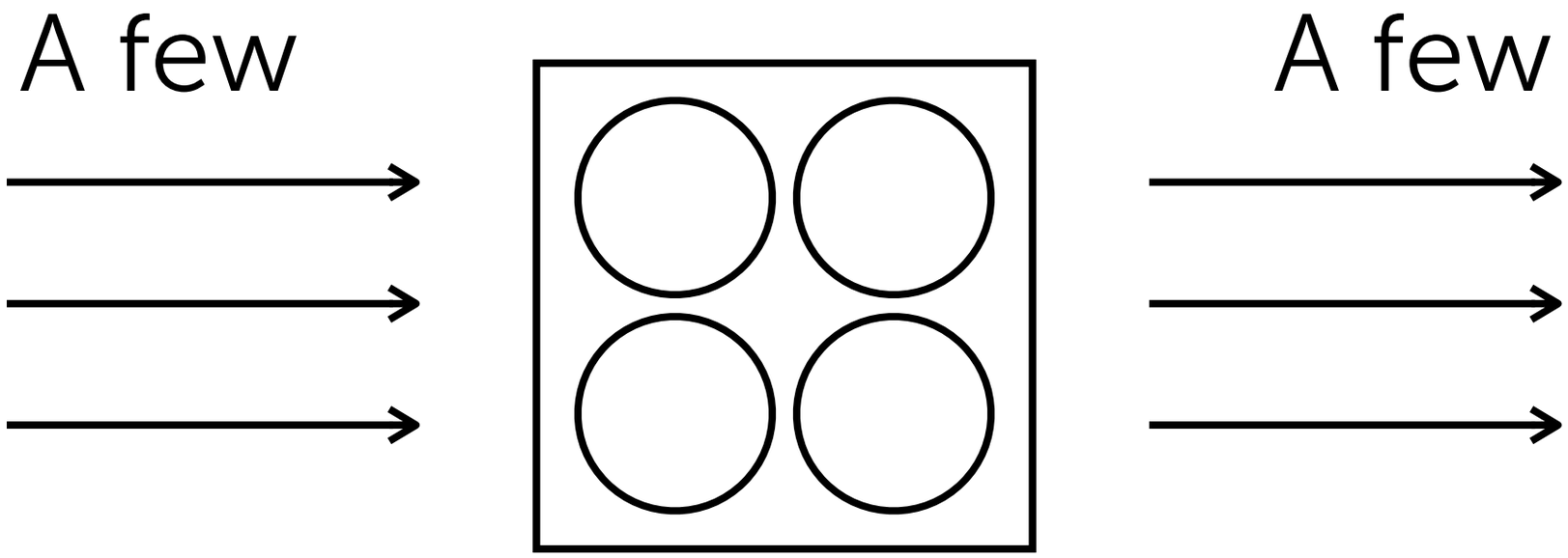
Deterministic



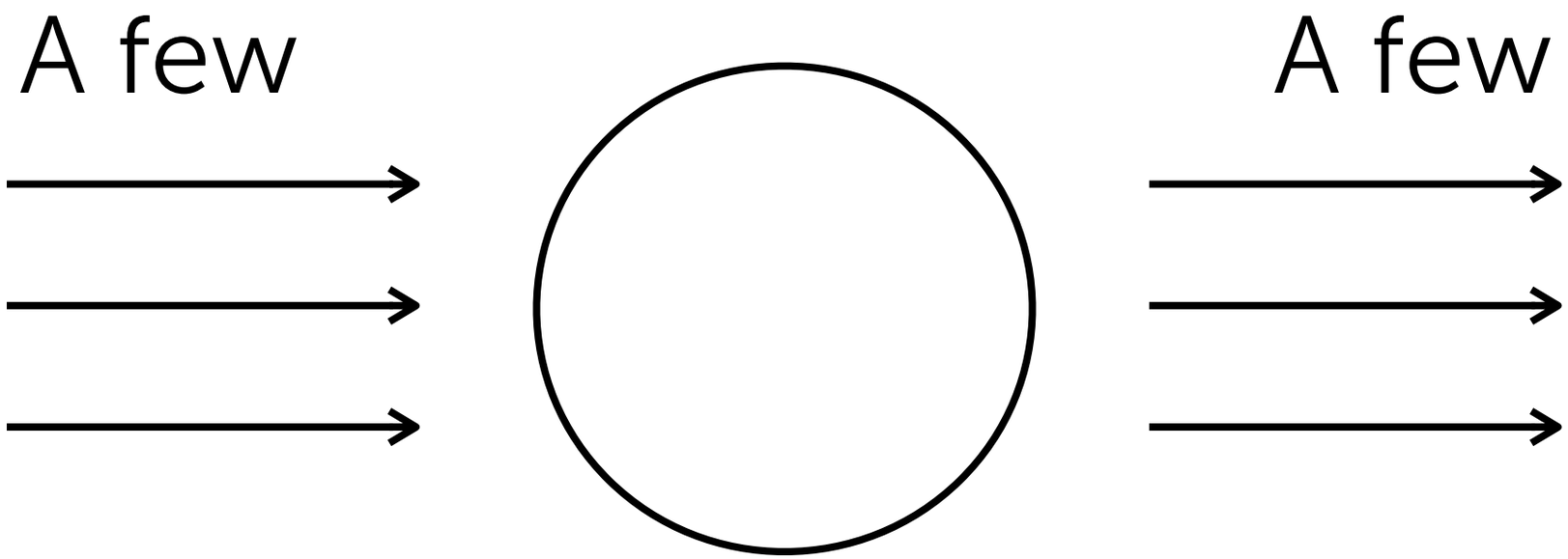
Monte Carlo



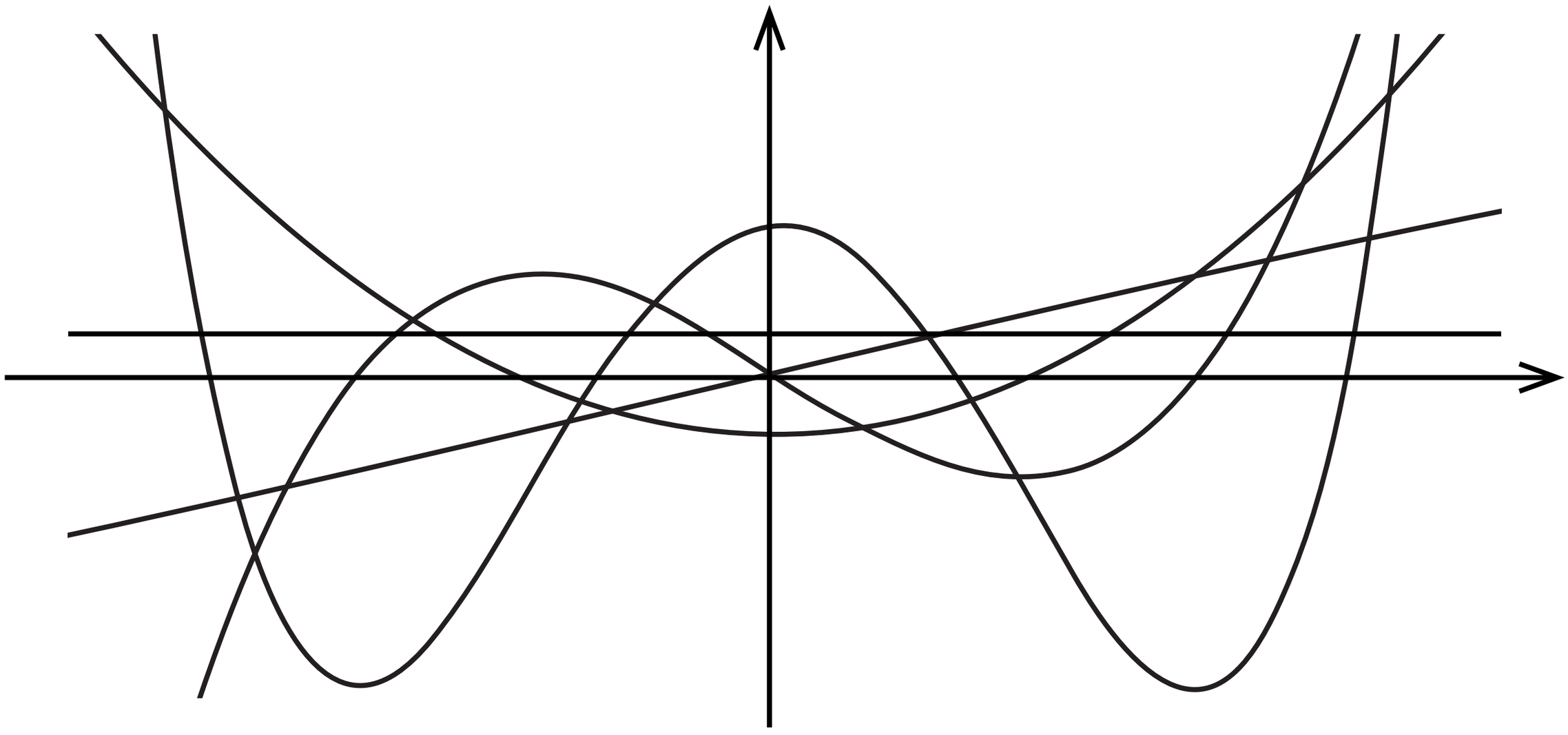
Our Work



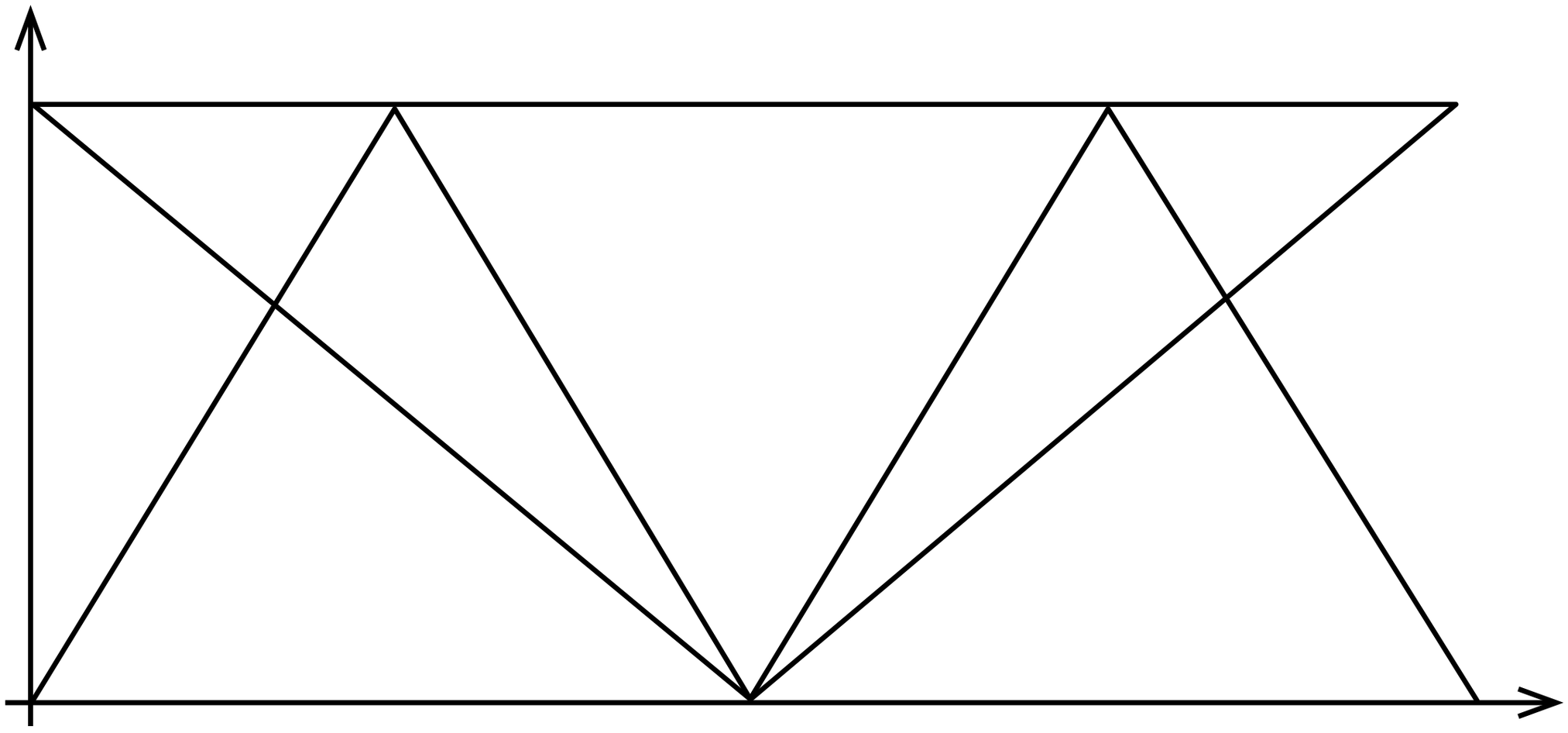
Our Work



Polynomial Chaos



Adaptive Interpolation



Thank you!
Questions?

https://www.ida.liu.se/~ivauk83