

# Probabilistic persistent homology

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In a filtered simplicial complex, the addition of critical faces at critical values either creates or destroys homology. Persistent homology pairs birth and death critical values. The result is a useful summary in applications because it is stable: small changes in the filtration lead to small changes in the pairings of critical values. Scientists are even more interested in the corresponding critical faces, but these are not at all stable. I will show how taking a probabilistic view allows one to obtain a stable summary of the critical faces.

*This is joint work with Paul Bendich (Duke University).*

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