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Yuliy Baryshnikov and **Robert Ghrist*** (ghrist@math.uiuc.edu). *Numerical integration with respect to Euler characteristic.*

This talk presents a novel application of constructible sheaves to problems in sensor networks. In particular, we show how integration with respect to Euler characteristic is extremely powerful as a means of data aggregation across an ad hoc wireless sensor network. This integration theory presents some curious challenges for computation, some of which will be highlighted in the talk. (Received August 20, 2007)