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Robert Ghrist* (ghrist@math.upenn.edu). *Sheaves of Opinions over Social Networks*.

A classical approach to the dynamics of opinions over social networks involves using the graph Laplacian to modulate opinions with those of immediate neighbors using a distributed diffusion. More recent entries in the literature tweak these systems to accommodate polarized or multiple opinions, using weighted Laplacians or selective detachment. This talk will outline work [joint with Jakob Hansen] on using sheaves of vector spaces to provide a fully customizable model for the spread and control of opinions over social networks. In this model, the Hodge Laplacian induces a heat equation in which harmonic opinion distributions are expressions of agreeable consensus, with sheaf cohomology acting as an obstruction to harmonic extension. Work in progress on extensions to more sophisticated data types [representing joint work with Hans Riess] will also be given. (Received September 15, 2020)