1135-49-370 **Carol Ann Downes*** (downes@hendrix.edu), 1600 Washington Avenue, Conway, AR 72032. *A Mass Reducing Flow for Transport Networks.*

An oriented transport network can be modeled by a 1-dimensional chain whose boundary is the difference between the supply and demand distributions, represented by weighted sums of point masses. To accommodate efficiencies of scale into the model, one uses a suitable $\mathbf{M}^\alpha$ norm for transportation cost. One then finds that the minimal cost network has a branching structure since the norm favors higher multiplicity edges, representing shared transport. In this talk, we construct a continuous flow that evolves some initial such network to reduce transport cost without altering its supply and demand distributions. Instead of limiting our scope to transport networks, we construct this $\mathbf{M}^\alpha$ mass reducing flow for real-valued flat chains by finding a real current of locally finite mass with the property that its restrictions are flat chains; the slices of such a restriction dictate the flow. Keeping the boundary fixed, this flow reduces the $\mathbf{M}^\alpha$ mass of the initial chain and is Lipschitz continuous under the flat-α norm. To complete the talk, we apply this flow to transportation networks, showing that the flow indeed evolves branching transport networks to be more cost efficient. (Received August 29, 2017)