Title: Certification Design for a Competitive Market (joint work with Andreas Haupt and Nicole Immorlica)

Abstract:

Motivated by voluntary markets for carbon offsets and removal, we consider a market for products with varying but hidden levels of quality. A third-party certifier can provide informative signals about the quality of products. The certifier designs the set of offered certificates and their prices; sellers choose both the quality of the product they produce and a certification level. The products are then sold in a competitive market. Under a single-crossing condition, we show that the levels of certification chosen by sellers are uniquely determined at equilibrium, and that the certifier's problem is equivalent to a screening problem with non-linear valuations. We study optimal menus for a variety of objectives, including certifier revenue and average product quality. We show that optimal menus satisfy an objective-specific monotonicity property and construct a fully polynomial-time approximation scheme (FPTAS) to compute them.