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*Mean value inequalities for the Poisson bracket invariant*

In this talk, motivated by a conjecture of Polterovich from 2012, I shall discuss the existence of the following mean value phenomenon in symplectic topology: "The more localized the supports of the functions forming a partition of unity on a symplectic manifold are, the more Poisson-noncommutative the functions are."

I shall first present an elementary approach to prove "mean value inequalities" for closed symplectic surfaces. For surfaces of genus at least one, this implies Polterovich's conjecture – which has been recently established for all closed surfaces by Buhovsky–Logunov–Tanny by other means. I shall then describe a work in progress with L. Buhovsky and S. Tanny aiming to use pseudoholomorphic curves to deduce "mean value inequalities" for higher-dimensional symplectic manifolds from the known two-dimensional results.