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The Poisson bracket invariant: elementary and hard approaches.

In 2006 Entov and Polterovich proved that functions forming a partition of unity with displaceable supports cannot commute with respect to the Poisson bracket. In 2012 Polterovich conjectured a quantitative version of this theorem. I will discuss three interconnected topics: a solution of this conjecture in dimension two (with Lev Buhovsky and Alexander Logunov), a link between this problem and Grothendieck's theorem from functional analysis (with Efim Gluskin), and new results related to the Floer-theoretical approach to this conjecture (with Yaniv Ganor).