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Alfonso Castro (castro@g.hmc.edu) and **Ivan Ventura*** (ibventura@cpp.edu). *Existence of solutions to a semilinear elliptic boundary value problem with augmented Morse index bigger than two.*

Building on the construction of least energy sign-changing solutions to variational semilinear elliptic boundary value problems introduced in the work of Castro-Cossio-Neuberger, we prove the existence of a solution with *augmented Morse index* at least three when a sub level of the corresponding action functional has nontrivial topology. We provide examples where the set of least energy sign changing solutions is disconnected, hence has nontrivial topology. (Received September 26, 2017)