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Leonardo Abbrescia (abbresci@msu.edu) and **Willie W.-Y. Wong*** (wongwwy@math.msu.edu). *Global large data solutions of the membrane equation*. Preliminary report.

The membrane equation, aka the time-like minimal/extremal surface equation, exhibits extraordinary null structure, a feature that has been used to demonstrate its small-data global wellposedness in all dimensions by Brendle and separately Lindblad. Recently the null structure has been further exploited by Wang and Wei to construct large-data, semi-global, dispersive solutions in the two- and three-spatial-dimensional case, using a modification of Christodoulou's short-pulse method; notably their construction allows the solutions to have a finite-time past singularity. In this talk we will present a very recent result constructing large, open families of global (both in the future and past time directions) solutions, in all spatial dimensions except for two. The solutions we construct are neither close to stationary nor dispersive. Our construction relies on perturbations around a geometric large-data ansatz, with the novelty where the solutions to the perturbation equations do not exhibit classical scattering behavior. (Received February 12, 2018)