1109-35-191 **Paul G. Schmidt*** (pgs@auburn.edu), Department of Mathematics and Statistics, Auburn University, Auburn, AL 36849-5310, and **Monica Lazzo** (monica.lazzo@uniba.it), Dipartimento di Matematica, Universita di Bari, via Orabona 4, 70125 Bari, Italy. *Blow-up at the boundary in polyharmonic elliptic equations with power-type nonlinearities.*

We study radial solutions with finite exit radius of semilinear elliptic PDEs involving an integer power of the Laplacian and a power-type nonlinearity with exponent greater than 1. Depending on the sign and monotonicity of the nonlinearity, two very different types of blow-up behavior are observed. Type-1 solutions diverge to infinity or negative-infinity; their blow-up profile is by now fairly well understood. Type-2 solutions, which do not occur in the classical second-order case, are unbounded from above and from below, oscillating wildly with ever-increasing amplitude and frequency; details of their blow-up behavior are just beginning to emerge. Our analysis employs dynamical-systems methods, applied to an associated system of asymptotically autonomous ODEs. (Received January 31, 2015)