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Omid Khanmohamadi* (okhanmoh@math.fsu.edu), 1017 Academic Way, 208 Love Building,
Tallahassee, FL 32306. *Resampling Pseudospectral Methods for PDEs*. Preliminary report.

A resampling pseudospectral method for PDEs is discussed and its behavior is analyzed. In particular, it is shown that this resampling method, combined with generalized Schur unitary triangularization, is capable of accurately approximating the point spectrum of unbounded, differential operators. This is in contrast to collocation methods without resampling, which introduce spurious eigenvalues (due to boundary conditions) into the spectrum of the approximate operator. It is also shown how this method leads to straightforward handling of auxiliary conditions (which may be local or non-local, imposed at the boundary or in the interior of the domain), especially in high-order PDEs, resulting in preservation of spectral accuracy for problems with discontinuous coefficients using domain decomposition. (Received September 23, 2015)