A framework for stable geometric spectral methods

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Spectral methods are extraordinarily powerful for boundary-value problems with regular boundary conditions and 'nice' geometries, more problematic for initial-value problems because of stability issues. In this talk we briefly review a recent theory of T-functions and W-functions, whereby evolutionary PDEs can be discretised stably in different geometries and while conserving, as necessary, the L_2 norm. We also discuss the conservation of the Hamiltonian in this setting.

Joint work with Marcus Webb (University of Manchester, UK) and Jing Gao (Jia-Tong University, X'ian, China).