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**Atanas G. Stefanov\*** ([stefanov@ku.edu](mailto:stefanov@ku.edu)), 1460, Jayhawk Blvd, Department of Mathematics, Lawrence, KS 66045. *Some recent developments in the spectral stability of waves in Hamiltonian PDE's.*

We consider the spectral stability of special solutions of some Hamiltonian PDE's, mostly traveling waves. In the last ten years, there have been several important developments in the theory of instability indices counting formulas, most notably the 2004 work of Kapitula-Kevrekidis-Sandstede. We present several new results in this direction (which are notably not covered by the existing results) including index counting for second order in time equations, KdV type problems on the line, as well as the stability of peakons of the Ostrovsky/short pulse problem. In all of our examples, we have a complete characterization of the stability of the waves. This research was carried out in collaboration with (various subsets of) S. Hakkaev, T. Kapitula, M. Stanislavova. (Received February 02, 2015)