

On Application of Random Matrix Theory in Physics of Vehicular Traffic

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We introduce a new class of random matrices and analyze their unfolded spectra. We investigate the level spacing distribution as well as the so-called associated number variance. The distributions acquired are subsequently compared to empirical distributions of inter-vehicle gaps, i.e. clear distances among succeeding cars moving in real-road traffic streams. The parameters of level spacing distribution are calibrated using the methods of generalized functions. We find good agreement. Furthermore, we discuss a perspective for applying RMT to analytical predictions of a vehicular traffic microstructure.