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Spectra of the Wilson Dirac operator at nonzero lattice spacing

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This talk discusses the effect of the lattice spacing on the microscopic spectrum of the Wilson Dirac operator. Exact results are obtained from Wilson chiral Perturbation Theory in sectors of
fixed topology, where topology is defined as the number of real eigenvalues of the Wilson Dirac operator. We compute the density of these real modes as well as the microscopic spectral density
of the hermitian Wilson Dirac operator. Both quenched and unquenched results are presented. We introduce a chiral Random Matrix Theory that reproduces these results. Finally, we discuss how these results may be used to determine the coefficients of Wilson chiral perturbation theory.

Presenter: SPLITTORFF, Kim (Niels Bohr Inst., Copenhagen)