

**On the distribution of the critical values
of random spherical harmonics**

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Time **Thursday, Sept 25, 2014 at 15:00**

Place **Campus Kirchberg, room B04**

We study the limiting distribution of critical points and extrema of random spherical harmonics, in the high energy limit. In particular, we first derive the density functions of extrema and saddles; we then provide analytic expressions for the variances and we show that the empirical measures in the high-energy limits converge weakly to their expected values. Our arguments require a careful investigation of the validity of the Kac-Rice formula in nonstandard circumstances, entailing degeneracies of covariance matrices for first and second derivatives of the processes being analyzed.

Joint work with Valentina Cammarota and Igor Wigman