ALMUT BURCHARD, University of Toronto
Symmetry-breaking in isodiametric capacitor problems

A classical theorem of Szegö says that balls maximize electrostatic capacity among sets of given diameter (while minimizing capacity among sets of given volume). On the other hand, balls do not maximize Riesz-capacity (with a Riesz-potential $|x|^{-\lambda}$, for fixed $\lambda > 0$) among sets of given diameter in high dimensions. Thus symmetry-breaking occurs as the Riesz kernel transitions from the Newtonian case ($\lambda = n - 2$) to the logarithmic case (corresponding to $\lambda = 0$), once λ is small enough relative to n. (Joint work with R. Choksi, E. Hess-Childs, and A. Martìnez.)