

1147-58-157

Xianzhe Dai*, dai@math.ucsb.edu, and **Shoo Seto** and **Gufang Wei**. *Fundamental Gap Estimate on Convex Domains of Sphere*.

In their celebrated work, B. Andrews and J. Clutterbuck proved the fundamental gap (the difference between the first two eigenvalues) conjecture for convex domains in the Euclidean space and conjectured that similar results holds for spaces with constant sectional curvature. In the work of Seto-Wang-Wei and He-Wei, the same estimate is established for convex domains of spheres of dimension 3 or higher. In joint work with S. Seto and G. Wei, we prove the estimate for the remaining case, thus establishing the conjecture for the sphere. Namely for any strictly convex domain in the unit S^n sphere, the gap is $\geq 3\frac{\pi^2}{D^2}$. As in B. Andrews and J. Clutterbuck's work, the key is to prove a super log-concavity of the first eigenfunction. (Received January 04, 2019)