

# ANALYSIS SEMINAR

## Compactness within the space of complete, constant $Q$ -curvature metrics on the sphere with isolated singularities

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Date

Time: 10:00 am

On-line at Zoom

**Abstract.** This talk addresses the moduli space of complete, conformally flat metrics on a sphere with  $k$  punctures having constant positive  $Q$ -curvature and positive scalar curvature. Previous work has shown that such metrics admit an asymptotic expansion near each puncture, allowing one to define an asymptotic necksize of each singular point. We prove that any set in the moduli space such that the distances between distinct punctures and the asymptotic necksizes all remain bounded away from zero is sequentially compact, mirroring a theorem of D. Pollack [1] about singular Yamabe metrics. Along the way, we define a radial Pohozaev invariant at each puncture and refine some *a priori* bounds of the conformal factor, which may be of independent interest.

## References

- [1] D. Pollack. *Compactness results for complete metrics of constant positive scalar curvature on subdomains of  $\mathbb{S}^n$* . Indiana Univ. Math. J. **42** (1993), 1441–1456.