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**Hao Fang\*** ([hao-fang@uiowa.edu](mailto:hao-fang@uiowa.edu)). *On constant  $\sigma_2$  curvature metrics on conic 4-spheres.*

In this talk we will report some recent progress joint with Wei Wei. We raise the problem of finding constant positive  $\sigma_2$  curvature metric on 4-spheres with finitely many singular points. We define a mass quantity that is monotone along level sets of the conformal factor. Using the local regularity result of Han-Li-Teixeiria, we are able to derive a necessary condition for the existence of singular solutions. We will also discuss several related problems. (Received January 28, 2019)