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Zheng-Chao Han* (zchan@math.rutgers.edu), Department of Mathematics, Hill Center, Busch Campus, Rutgers University, Piscataway, NJ 08854, **Sun-Yung Alice Chang** (chang@math.princeton.edu), Department of Mathematics, Princeton University, Princeton, NJ 08540, and **Paul C Yang** (yang@math.princeton.edu), Department of Mathematics, Princeton University, Princeton, NJ 08540. *Some remarks on the symmetry of complete, locally conformally flat metrics on canonical domains of the round sphere with constant Q -curvature.*

We will report on some results, jointly with Alice Chang and Paul Yang of Princeton University, on the symmetry of complete, locally conformally flat metrics on canonical domains of the round sphere with constant Q -curvature. More specifically

Theorem. *Any complete, conformal metric g on $\mathbb{S}^n \setminus \mathbb{S}^l$ for $l \leq \frac{n-2}{2}$ satisfying*

$$Q_g \equiv 1 \text{ or } 0, \tag{1}$$

and

$$R_g \geq 0, \tag{2}$$

in $\mathbb{S}^n \setminus \mathbb{S}^l$ has to be symmetric with respect to rotations of \mathbb{S}^n which leave \mathbb{S}^l invariant. This theorem is a corollary of the following

Theorem. *Let g be a conformal, complete metric on $\Omega \subsetneq \mathbb{S}^n$ such that (1) and (2) hold in Ω . Then for any ball $B \subset\subset \Omega$ in the canonical metric $g_{\mathbb{S}^n}$, the mean curvature of its boundary ∂B in metric g with respect to its inner normal is nonnegative.* (Received March 21, 2017)