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SPHERICAL CAP DISCREPANCY AND INEQUALITIES ON THE SPHERE

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Abstract. The aim of this work is to present a method of covering the unit sphere by means of spherical caps of fixed radius. The method based on a set of rotations provides an explicit formula for the number of spherical caps that cover the whole unit sphere and the exact positioning of their centers.

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REFERENCES

[1] A. LUBOTZKY, R. PHILLIPS AND P. SARNAK, *Hecke operators and distributing points on the sphere I*, Comm. Pure Appl. Math., **39** (1986), 149–186.
[2] M. ALLALI, *Compression on the digital sphere*, Electron. J. Diff. Eqns., Conf. 07 (2001), 15–24.
[3] A. KIRILLOV, *Elements of the Theory of Representations*, Springer-Verlag, New York, 1976.
[4] G. SZEGÖ, *Orthogonal Polynomials*, AMS, Coll. Publ. XXIII, 1939.
[5] G. SZEGÖ, *Über eine von Herrn S. Bernstein herrührende Abschätzung der Legendreschen Polynome*, Math. Annalen, **108** (1933), 360–369.
[6] E. RAINVILLE, *Special Functions*, MacMillan Company, New York 1960.
[7] D. MITRINOVIĆ, *Analytic Inequalities*, Springer, New York, 1970.

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