

# A new construction of spherical designs by using Hopf maps

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## Abstract

It is known that one can make spherical  $t$ -designs on a  $d$ -sphere  $S^d$  from a spherical  $t$ -design on  $S^{d-1}$  and an interval  $t$ -design on the open interval  $(-1, 1)$  with respect to the weight function  $w_d(s) := (1-s^2)^{(d-2)/2}$  ([Rabau-Bajnok, J. Approx. Theory (1991)], [Wagner, Monatsh. Math. (1991)]).

In this talk, we generalize the fact above and applying it for Hopf maps, then we have an algorithm to making spherical designs on  $S^3$  [resp.  $S^7$ ] from spherical designs on  $S^2$  and  $S^1$  [resp.  $S^4$  and  $S^3$ ].