

POLYNOMIAL APPROXIMATION ON SPHERES – GENERALISING
DE LA VALLÉE POUSSIN

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For trigonometric polynomial approximation on a circle, the de la Vallée Poussin construction has two notable properties as the polynomial degree goes to infinity: it yields uniform convergence for all continuous functions; yet it also exhibits arbitrarily fast convergence for smooth functions. It is allowed to have both properties because it is a uniformly bounded but not positive projection onto the trigonometric polynomial space. In this talk I present a generalisation of the de la Vallée construction to higher dimensional spheres. Such a generalisation seems to be not presently known.