UNIVERSITY of WISCONSIN
UWMILWAUKEE

Department of
Mathematical Sciences

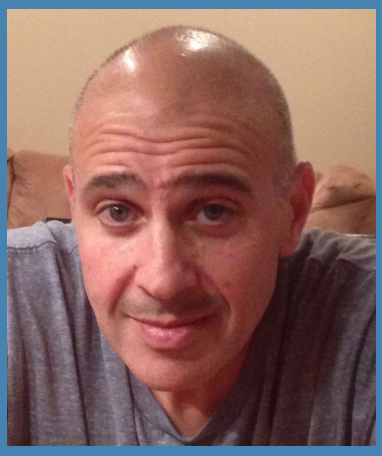
Colloquium

Dr. Howard S. Cohl

Mathematician

National Institute of Standards and Technology

Friday,
Sept 20, 2019
EMS Building
Room E495
2:00 pm



Dr. Howard S. Cohl

UW-Milwaukee
Department of
Mathematical Sciences

EMS Building, Room E403
3200 North Cramer Street
Milwaukee, Wisconsin 5321
414-229-4836
math-staff@uwm.edu

The Askey-Wilson Polynomials, their Symmetric Sub-Families and *q*-Inverse Properties

We give a more precise symmetric parametric description for various properties of the Askey-Wilson polynomials including hypergeometric and *q*-integral representations. We study the symmetric *q*-inverse sub-families of the Askey-Wilson polynomials. We also study the continuous *q*-inverse ultraspherical/*q*-inverse Rogers polynomials. We examine basic hypergeometric representation and transformation formulae, limit transitions, connection relations, and generating functions and corresponding *q*-integrals for these families. We have also focused on the *q*-inverse generating function for continuous *q*-inverse ultraspherical polynomials. This generating function has the intriguing property in that it is able to cross the natural boundary at $q=1$. Using this generating function, we compute a *q*-inverse analogue of the Ismail-Simeonov expansion for the continuous *q*-inverse ultraspherical polynomial generating function. This leads to a new terminating quadratic transformation for basic hypergeometric functions.

Light refreshments will be served at 1:30pm in E424A.

Visit our website for more information on other Department events: www.uwm.edu/math

POWERFUL IDEAS | **PROVEN RESULTS** |®