Seminar Announcement*

Speaker: Hermann RENDER
(University of College Dublin)

Harmonic divisors of zero and irrationality of zeros of Jacobi polynomials.

A polynomial Q(x) is called a harmonic divisor if there exists a polynomial p(x) $\neq$ 0 such that the product Q(x)p(x) is harmonic. The problem of characterizing harmonic divisors arises in the investigation of stationary sets for the wave and heat equation, injectivity of the spherical Radon transform and problems in the study of the Cauchy problem in the category of formal power series. D. Armitage has shown that the quadratic homogeneous polynomial $Q_\gamma(x_1,\ldots,xd)=\gamma(x_1^2+\ldots,x_d^2)-x_{d-1}^2$ for $\gamma\in(0,1)$

$m,k\in\{0,\ldots,m\}$ such that $C_{m-k}^{k+(d-2)/2}(\sqrt{\gamma})=0$ where $C_m^\lambda(x)$ is the Gegenbauer polynomial (or ultraspherical polynomial) of degree m and parameter λ. We show in this talk
that

$$C_{m-k}^{k+(d-2)/2}(\sqrt{b/c})\neq 0 \text{ for all } k\in\{0,\ldots,m\}, m\geq 0$$

for all integers b and c without a common divisor such that b is divided by some prime p > 3 or by p = 2, answering a question of M. Agranowsky positively.

DATE: June 12, 2009

TIME: 15:45

PLACE: FEF 403 (Seminar Room)

All interested people are cordially invited. After the seminar, some cookies and soft drinks will be served.

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