

IMS September Meeting 2007 Seminar

	Title:	A multivariable	Cayley–Hamilton	theorem
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Speaker: M. Mathieu

Date: Tue 4th September 2007 at 4:00PM

Location: ENG226

Abstract: The Weyl calculus for a pair A = (A1,A2) of selfadjoint n x00D7; n matrices, due to H. Weyl, associates a matrix WA(f) to each smooth function f defined on R^2 in a linear but typically not multiplicative way. Letting cA(x03BB;) = det((A1 - x03BB;1)2 + (A2 - x03BB;2)2) for x03BB; = (x03BB;1,x03BB;2) $\in \mathbb{R}^2$ denote the joint characteristic polynomial of the pair A it is known, for n x2264; 3, that A 1A2 = A2A1 if and only if WA(cA) = 0. It is an open problem whether this is still true for n x003E; 3. We shall discuss two new approaches to this problem: the role of the canonical order structure for selfadjoint matrices; and topological invariants arising from continuity properties of the non-linear map (f,A) x21A6;x2192; W A(f). This is joint work with W. Ricker, EichstjA8¿att, Germany to be published in Math. Proc . Royal Ir. Acad.

http://maths.ucd.ie/ims07