Professor Dr. Katrin Wendland
Lehrstuhl für Analysis und Geometrie
Institut für Mathematik der Universität
Augsburg

Gastprofessorin Dr. Emma Carberry

Telefon: (0821) 598-2205
Fax: (0821) 598-2458
E-mail:
emma.carberry@math.
uni-augsburg.de
Postadresse:
D86135 Augsburg
Germany

Sommersemester 2008

Vorlesung

Integrable Systems
and the Self-Duality Equations

We will begin with a general tour of integrable systems as they appear in geometry, with a number of examples of integrable systems and an explanation of how they relate to Lax equations and symplectic geometry. We will then discuss the seminal work of Hitchin on the moduli space of solutions to the self-duality equations over a Riemann surface.

Literature:
Twistors, Loop Groups, and Riemann Surfaces, by Hitchin, Segal, Ward (Hitchin's Chapter);
Linearizing Flows and a Cohomological Interpretation of Lax Equations, by Philipp A. Griffiths - American Journal of Mathematics, Vol. 107, No. 6 (Dec., 1985), pp. 1445-1484;

The self-duality equations on a Riemann surface, Nigel Hitchin, Proc. London Math. Soc. (3) 55 (1987), 59-126. MR 89a32021;
Stable bundles and integrable systems, Nigel Hitchin, Duke Math. J. 54 (1987), 91-114, MR 88i:58068
(The last two will not be studied in full; we will do as much as time permits)

For further information please contact: carberry@maths.usyd.edu.au