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A Talk at the 2nd ISNMP Conference

Bad Ems, 28 June to 4 July 2026

Regular Session:

Speaker: Claire Gilson (School of Mathematics and Statistics, University of Glasgow)

Title: *Darboux Transformations, Quasi-determinants and the Sasa-Satsuma equation*

Abstract: The Sasa-Satsuma equation is a 3rd order integrable evolution equation exhibiting soliton solutions. In this talk I will examine some other solutions including rational solutions and solutions in terms of quasi determinants aiming at a non-commutative version. The work builds on that of Nimmo and Yilmaz and that of Bandelow and Akhmediev amongst others.

References:

J. Nimmo and H. Yilmaz, "Binary Darboux transformation for the Sasa-Satsuma equation", *J. Phys.A Math. Theor.* 48 (2015) 425202.

U. Bandelow and N. Akhmediev, "Persistence of rogue waves in extended nonlinear Schrödinger equations: Integrable Sasa-Satsuma case", *Physics Letters A*, Volume 376, (2012) 1558-1561.