# A Nahm transform between G2-monopoles and 5-dimensional Instantons

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The moduli space of anti self-dual (ASD) instantons of a oriented 4-manifold is an interesting space which carries information about the smooth structure of the manifold, and is, e.g., used by in his groundbreaking work on the geometry of 4-manifolds.

Reductions of the ASD-equations to lower dimensions gives defines the Bogomonly monopoles, Hitchin equations, Nahm equations and ADHM-data, which are all subject of ongoing studies. Nahm and Hitchin defined a **Nahm transform** that relates the moduli space of Nahm equations with the moduli space of Bogomolny monopoles.

In their article *Guage theory in Higher Dimensions II*, Donaldson and Segal argue that there are similar theories in higher dimensions, strongly related to Berger's holonomy classification. In particular there is a 7-dimensional theory called $G_2$-monopoles, and a 5-dimensional instanton theory (Haydys-Witten equations). I work on a relation between those theories that is similar to the Nahm transform.

In my talk I'd like to give a short overview of the theory mentioned above and give a description of the relation mentioned.