1064-35-205 **Feride Tiglay*** (ftiglay@fields.utoronto.ca), Fields Institute, 222 College Street, 2nd Floor, Toronto, ON M5T 3J1, Canada. *The periodic Cauchy problem for Novikov's equation.*

We study the periodic Cauchy problem for an integrable equation with cubic nonlinearities introduced by V. Novikov. Like the Camassa-Holm and Degasperis-Procesi equations, Novikov's equation has Lax pair representations and admits peakon solutions, but it has nonlinear terms that are cubic, rather than quadratic. We show the local well-posedness of the problem in Sobolev spaces and existence and uniqueness of solutions for all time using orbit invariants. Furthermore we prove a Cauchy-Kowalevski type theorem for this equation, that establishes the existence and uniqueness of real analytic solutions. (Received September 09, 2010)