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Ilia Binder (ilia@math.toronto.edu), **David Damanik** (damanik@rice.edu), **Michael Goldstein** (gold@math.toronto.edu) and **Milivoje Lukic*** (mlukic@math.toronto.edu). *KdV equation with almost periodic initial data.*

In the 1960s, the KdV equation was discovered to have infinitely many conserved quantities, explained by a Lax pair formalism. Due to this, the KdV equation is often described as completely integrable. Similar features were soon found in other nonlinear equations, spurring the field of integrable PDEs in which the KdV equation continues to be one of the flagship models. These ideas were originally implemented for fast decaying initial data and, in the 1970s, for periodic initial data. In this talk, we will describe recent progress for almost periodic initial data, centered around a conjecture of Percy Deift that the solution is almost periodic in time. We will discuss the proof of existence, uniqueness, and almost periodicity in time, in the regime of absolutely continuous and sufficiently “thick” spectrum, and in particular, the proof of Deift’s conjecture for small analytic quasiperiodic initial data. (Received January 16, 2016)