1077-37-464 **Adam Doliwa*** (doliwa@matman.uwm.edu.pl). *Quantum pentagon equation, Hirota's discrete KP equation, and projective geometry over division rings.*

An incidence geometry interpretation of the Hirota equation and of its integrability (understood as the multidimensional consistency) will be presented. Such a description makes also visible the A_N affine Weyl group symmetry of the system of the Hirota equations for N discrete variables. The Veblen configuration, which provides the geometric interpretation of the Hirota equation, allows to define a birational map $S : D^2 \times D^2 - - > D^2 \times D^2$, where D is an arbitrary division ring (skew field). The Desargues configuration, which is responsible for the 4-dimensional consistency of the Hirota equation, explains why S satisfies the functional dynamical pentagon equation $S_{12}S_{23} = S_{23}S_{13}S_{12}$ on $D^2 \times D^2 \times D^2$. It turns out that in an appropriate gauge the (commutative version of the) map preserves a natural Poisson structure - the quasiclassical limit of the Weyl commutation relations. This allows to construct the corresponding solution of the quantum pentagon equation. (Received September 02, 2011)