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Jingsong He and **Junyi Tu*** (junyi@mail.usf.edu), Tampa, FL 33613, and **Xiaodong Li** and **Lihong Wang**. *Explicit Flow Equations and Recursion Operator of the ncKP hierarchy.*

The explicit expression of the flow equations of the noncommutative Kadomtsev-Petviashvili(ncKP) hierarchy is derived. Compared with the flow equations of the KP hierarchy, our result shows that the additional terms in the flow equations of the ncKP hierarchy indeed consist of commutators of dynamical coordinates $\{u_i\}$. The recursion operator for the flow equations under n -reduction is presented. Further, under 2-reduction, we calculate a nonlocal recursion operator $\Phi(2)$ of the noncommutative Korteweg-de Vries(ncKdV) hierarchy, which generates a hierarchy of local, higher-order flows. Thus we solve the open problem proposed by P.J. Olver and V.V. Sokolov(Commun.Math.Phys. 193 (1998), 245-268). (Received September 07, 2011)