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Yunbo Zeng* (yzeng@math.tsinghua.edu.cn), Department of Mathematical Sciences, Tsinghua University, Beijing, 100084, Peoples Rep of China. *A New Multi-component KP Hierarchy.*

We propose a new multi-component KP (mcKP) hierarchy which includes two kinds of KP equation with self-consistent sources. This hierarchy also admits reductions to the well-known k -constrained KP hierarchy, which contains second type of soliton equation with self-consistent sources, and n -reduced KP hierarchy with self-consistent sources i.e. Gelfand-Dickey hierarchy with self-consistent sources. The new mcKP hierarchy provides general approach to find the soliton equations with self-consistent sources and their Lax representations (Received September 19, 2007)