Drinfel’d-Sokolov construction and exact solutions of the vector modified KdV hierarchy

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In this talk I will present some recent results regarding the construction of the vector modified KdV hierarchy, based on the Drinfel’d-Sokolov scheme. The recursion operator as well as a generating function for the conserved densities of the hierarchy will also be presented. I will discuss how Darboux transformations play a central role in this construction, and then use the dressing method in order to generate soliton and breather solutions for the whole hierarchy.

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