962-44-970 **Boris Baeumer*** (baeumer@unr.edu), Department of Geologic Sciences/ MS175, University of Nevada, Reno, Reno, NV 89557. *Vector-valued generalized functions.* Preliminary report.

J. Mikusiński introduced an operational calculus by extending the ring generated by the convolution transform to a field. Vector-valued functions form a module with respect to convolution with a scalar valued function and this module is extended to a vector space of vector valued generalized functions. We are going to display three different representations of elements in this vector space. We show the elements to be an abstract vector, a limit of continuous functions and therefore an element in a Banach/Frechét space, and finally, by means of the asymptotic Laplace transform, a meromorphic vector-valued function living on a sectorial region in the complex plane. A new inversion formula for the asymptotic Laplace transform is providing the approximating sequence of continuous functions for each element in the vector space. (Received October 02, 2000)