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*Symplectic manifolds singularities concentrated on
hypersurfaces*

In recent years, there has been a significant increase in the study of manifolds with a closed 2-form that is non-degenerate at all points except those that form a certain hypersurface. With respect to the points lying on it, it is assumed that at each of them the kernel of this form or of the tensor inverse to it is two-dimensional and transversal to the hypersurface. Under these conditions, symplectic manifolds with a singularity are today called folded symplectic, and Poisson manifolds with a singularity are called b -symplectic. Among the personalities associated with this direction, it is worth mentioning Victor Guillemin and Richard Melrose. The most active author of works on this topic seems to be Eva Miranda.

At the same time, the case when the kernel of a symplectic form has dimension $2k > 2$ at each point of some hypersurface has not been studied in essence, except for the theory of symplectic manifolds with contact singularities (SMCS) developed in the doctoral dissertation of Dmitry Zot'ev. In the case of a two-dimensional kernel, SMCS is exactly a folded symplectic manifold. In the case of a larger dimension of the kernel, the SMCS theory apparently has no analogues. Although in 2020 Melinda Lanius started the study of the so-called scattering symplectic manifolds, which seem to be dual to SMCS-s, although in fact they are not.

The report will review these studies in the context of SMCS theory and their interrelationships. Some results of the SMCS theory will be presented for the first time.

**SCIENTIFIC SEMINAR
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