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Title: Immersions of 3-manifolds and links of simple singularities

Abstract: The Wu invariant is a regular homotopy invariant for immersions of 3-manifolds to 5-space. It is a 2nd cohomology class, whose double is the normal Euler class. Earlier Szűcs, Takase and Saeki described the geometric meaning of the Wu invariant.

Recently, Masato Tanabe published two vanishing theorems for the Wu invariant in terms of (almost) contact and complex structures. Based on these theorems, the mysterious relationship between two (infinite) families of immersions is completely clarified. Both families are immersions associated to the A-D-E plumbing graphs, but their construction is totally different.

The first family is related to the links of simple singularities, studied by Némethi and Pintér, and the second family was introduced by Kinjo via a topological construction. In particular, the recent work of Tanabe explains the earlier verified coincidence of the Smale invariants of the corresponding sphere immersions.