1117-57-391   **Patricia Cahn*** (`pcahn@mpim-bonn.mpg.de`) and **Vladimir Chernov**. *Knots transverse to a vector field and the classification of Legendrian knots.*

We study knots transverse to a fixed vector field V on a 3-manifold M up to the corresponding isotopy relation. Such knots are equipped with a natural framing. Motivated by questions in contact topology, it is natural to ask whether two V-transverse knots which are isotopic as framed knots and homotopic through V-transverse immersed curves must be isotopic through V-transverse knots. When M is R^3 and V is the vertical vector field the answer is yes. However, we construct examples which show the answer to this question can be no in other 3-manifolds, specifically S^1-fibrations over surfaces of genus at least 2. We also give a general classification of knots transverse to a vector field in an arbitrary closed oriented 3-manifold M. We show this classification is particularly simple when V is the co-orienting vector field of a tight contact structure, or when M is irreducible and atoroidal. Lastly, we apply our results to study loose Legendrian knots in overtwisted contact manifolds, and generalize results of Dymara and Ding-Geiges. This work is joint with Vladimir Chernov. If time permits we will also discuss applications to the coarse classification of Legendrian knots which are homologically nontrivial, joint with Bulent Tosun. (Received January 18, 2016)