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**William W Menasco\*** (menasco@buffalo.edu), Department of Mathematics of Mathematics, University at Buffalo—SUNY, Buffalo, NY 14260. *Future of braid foliation techniques*. Preliminary report.

*Braid foliation techniques* is a theory developed to study knots and links and related surfaces in 3-manifolds, and which from its inception has been intimately related to contact topology. Bennequin in the early 1980's first used these techniques to study transverse links and contact structures on  $\mathbb{R}^3$ , establishing the existence of non-contactomorphic contact structures. In the 1990's Birman-Menasco used these techniques in  $\mathbb{R}^3$  and  $S^3$  to probe the landscape of closed braids representing topological link types, with their work culminating in the Markov Theorem without Stabilization and accompanying applications to the study of link types whose transverse classification is non-trivial. Researchers have applied braid foliation techniques to solve problems in braid theory and contact topology: Dynnikov-Prasolov's proved of the Legendrian grid number conjecture and the generalized Jones conjecture; Ito and Maljutin-Netsvetsev discovered interplay between braid foliations and Dehornoy's ordering of braids; and, Ito and Keiko Kawamuro extended braid foliation techniques to closed 3-manifolds.

This talk will briefly review the key component of braid foliation techniques, and suggest new directions and problems that the technology might be pushed. (Received July 26, 2017)