Chasing Puppies

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I'll describe a topological solution to the following puzzle, posed by Michael Biro in 2013. A human and a puppy find themselves at different points on a walking trail, which is a simple closed curve in the plane. The human and puppy can see each other from anywhere on the trail, but they cannot leave the trial. The puppy always moves as quickly as possible to decrease its distance to the human. Can the human catch the puppy? (Yes!)

This is joint work with Irina Kostitsyna, Maarten Löffler, Tillman Miltzow, and Jérôme Urhausen.