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Catherine Pfaff* (cpfaff@math.ucsb.edu), **Yael Algom-Kfir** and **Ilya Kapovich**. *Geodesics in Outer Space*.

Outer automorphisms of free groups are often studied via their action on Culler-Vogtmann Outer Space. One of the more interesting aspects of the interplay between these outer automorphisms and Outer Space is the relationship between automorphisms and geodesics in Outer Space. In fact, unlike hyperbolic spaces and Teichmueller spaces, a given automorphism can have many geodesics canonically associated to it. The properties of outer automorphisms with only a single associated geodesic are only now being understood. Specifically, we show that having certain invariant values is an “almost open” condition. Since the fact that it is not exactly an open condition differs from the Teichmueller space setting, we give examples contradicting openness and prove results further elucidating this situation. Our hope is that better understanding such behavior of geodesics will lead to new dynamical and genericity results emulating those in the hyperbolic and Teichmuller space settings. This is joint work with Yael Algom-Kfir and Ilya Kapovich. (Received February 13, 2018)