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Sean R McCurdy* (serimcc@uw.edu), Seattle, WA. *A tale of two approaches*. Preliminary report.

This talk will investigate the application of two different techniques, one developed by Naber and Valtorta and one developed by Edelen and Engelstein, to the investigation of the fine structure of solutions to a two-phase free boundary problem. Both approaches rely upon the exploitation of monotonicity formulae to build inductively-refined covers. This talk will focus on their relative strengths and differences.

The context of application will build upon work by Toro, Badger, and Engelstein, on two-sided free boundary problems with geometric conditions on the free boundary (two-sided NTA domains) and mild regularity on the Radon-Nikodym derivative of the harmonic measures from each side. Surprisingly, this context allows us to prove Minkowski dimension bounds on the strata of the critical set of such solutions across the free boundary. (Received February 16, 2018)