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Mark W Gross* (mgross@math.ucsd.edu), UCSD Mathematics, 9500 Gilman Drive, La Jolla, CA 92093-0112, and **Paul Hacking** and **Sean Keel**. *On a conjecture of Looijenga on smoothability of cusp singularities*. Preliminary report.

Cusp surface singularities come in dual pairs. Looijenga conjectured that a cusp singularity (Y, p) is smoothable if and only if there is a rational surface S with a singular point $p' \in S$ such that (S, p') is the cusp singularity dual to (Y, p) .

We demonstrate that this conjecture is a special case of mirror symmetry, and give a proof of it using techniques of scattering diagrams and the tropical vertex group. (Received September 10, 2009)