Dewetting of a fluid between parallel plane surface with non-
constant forcing PAROUSIA ROCKSTROH\textsuperscript{1}, Harvey Mudd College, THOMAS
WARD\textsuperscript{2}, University of California - Los Angeles — We examine the effect of applying
a nonconstant force to the radial squeezing and de-wetting of a thin film of viscous
Newtonian fluid between parallel plane walls. We explore the problem theoretically
for gap spacings much smaller than the typical capillary length for air-liquid systems
\(< \text{O}(1) \text{ mm})\). In our model, we parameterize force using a single variable $F$ which
is proportional to a constant force $F_0$ and the height of the gap spacing $h$ to some in-
teger power $n \in \mathbb{Z}^+$. Since there is no known analytic solution for $n > 0$, we analyze
the solution of the dewetting problem numerically. Analysis reveals the formation of
a singularity, leading to capillary adhesion, as the gap spacing approaches a critical
value that depends on $F_0$, $n$ and a variable $C$ that is analogous to a spring constant.

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