Jump conditions for thin bodies from an action principle JAMES
HANNA, Virginia Polytechnic Institute and State University — Thin, flexible bod-
ies such as strings, sheets, and rods often sustain kinky geometric features, or expe-
rience discontinuous contact forces in their interactions with obstacles. The physics
of dynamic and static versions of these phenomena differ. Kink/shock propagation,
impact, peeling, unwrapping, tearing and cracking all occur at geometric locations in
a body that do not correspond to material points. I will discuss how the jump condi-
tions for momentum and energy across such moving discontinuities may be derived
from an action principle for an extended body with time-dependent, non-material
boundaries.

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