Abstract Submitted
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A network model for foam dynamics[1] PETER STEWART, MICHAEL GRATTON, MICHAEL DAVIS, STEPHEN DAVIS, Northwestern University — We present a large-scale network model for the dynamics and stability of a planar metallic foam, composed of polygonal gas bubbles separated by thin liquid films. In particular, we track the positions of the bubble vertices, where most of the liquid volume is concentrated, and incorporate a direct coupling between the pressure and volume of the bubbles, surface-tension forces on the gas-liquid interfaces and draining and elongational flows in the films. We invoke a van-der-Waals instability criterion due to Anderson, Brush and Davis [to appear in *J. Fluid Mech.*] and present numerical simulations of the resulting topological re-arrangements within the foam.

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