Whirling Skirts JAMES HANNA, University of Massachusetts, Amherst, JEMAL GUVEN, Universidad Nacional Autónoma de México, MARTIN MICHAEL MÜLLER, Université de Lorraine — Steady wave patterns may be observed on a rotating skirt. These patterns display a well-defined dihedral symmetry and are marked by strikingly sharp features. We capture these with a minimal model of traveling waves on an inextensible, flexible, rotating generalized-conical sheet. Conservation laws associated with the dynamics are used to reduce the Euler-Lagrange equations to a quadrature describing a particle in a potential. Analytical solutions are obtained; these are quantized by the extrinsic closure of the skirt. Coriolis forces play an essential role in establishing these configurations.

James Hanna
University of Massachusetts, Amherst