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Unusual results from stability computations for variations of the Taylor-Couette problem RANDALL TAGG, University of Colorado at Denver and Health Sciences Center, PATRICK WEIDMAN, University of Colorado at Boulder — The classical approach to stability for Taylor-Couette, convection, and other fluid systems gives an archetypal means for mode and wavelength selection. Several variations of the Taylor-Couette problem reveal unusual stability characteristics. These characteristics include linear selection of multiple critical wavenumbers, critical values occurring at apparent maxima of marginal curves rather than minima, and dispersion parameters that give negative group velocity. These results occur for variations of the Taylor-Couette problem that include the use of counter-rotating cylinders, radial temperature gradients, and radial temperature gradients with radial gravity. Even without a full nonlinear treatment of these problems, a wide variety of interesting experiments is suggested.

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