

On the integrable structures in random matrix models and Hele-Shaw flows

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Different faces of the Toda hierarchy underlie random matrix models and Laplacian growth processes. To take advantage of these integrable structures solution methods of the dispersionful Toda hierarchy and its dispersionless limit are required. We present a scheme for determining solutions satisfying string equations and show how these solutions emerge in the large N -limit of the hermitian matrix model and the bubble break-off in Hele-Shaw flows.