$$\frac{\partial \rho^*(r^*;t^*)}{\partial t^*} = k_a^*(r^*)c_0^*(r^*)\phi(r^*;t^*) - k_d^*(r^*)\rho^*(r^*;t^*) \quad \text{(A2)}$$

where

$$k_a^*(r^*) = \frac{k_a(r)}{k_a(R)}, \quad k_d^*(r)^* = \frac{Rk_d(r)}{k_a(R)}$$

It is easy to show that the dimensionless distributions must satisfy the following relations:

$$\int_0^\infty c_0^*(r^*)dr^* = 1 \quad \text{(A3)}$$

and

$$\int_0^\infty r^* c_0^*(r^*)dr^* = 1 \quad \text{(A4)}$$

For example, if the polydispersity of a latex sphere solution can be described by:

$$c_0(r) = are^{-\lambda r} \quad \text{(A5)}$$

for which $C_0 = a/\lambda^2$, $R = 2/\lambda$, then one need only consider the dimensionless distribution:

$$c_0^*(r^*) = 4r^* e^{-2r^*} \quad \text{(A6)}$$

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Erratum

In the article titled "Robust Design of Binary Countercurrent Adsorption Separation Processes" (March 1993, p. 471), an incorrect Figure 8 (p. 480) was placed inadvertently. Here is the correct figure:

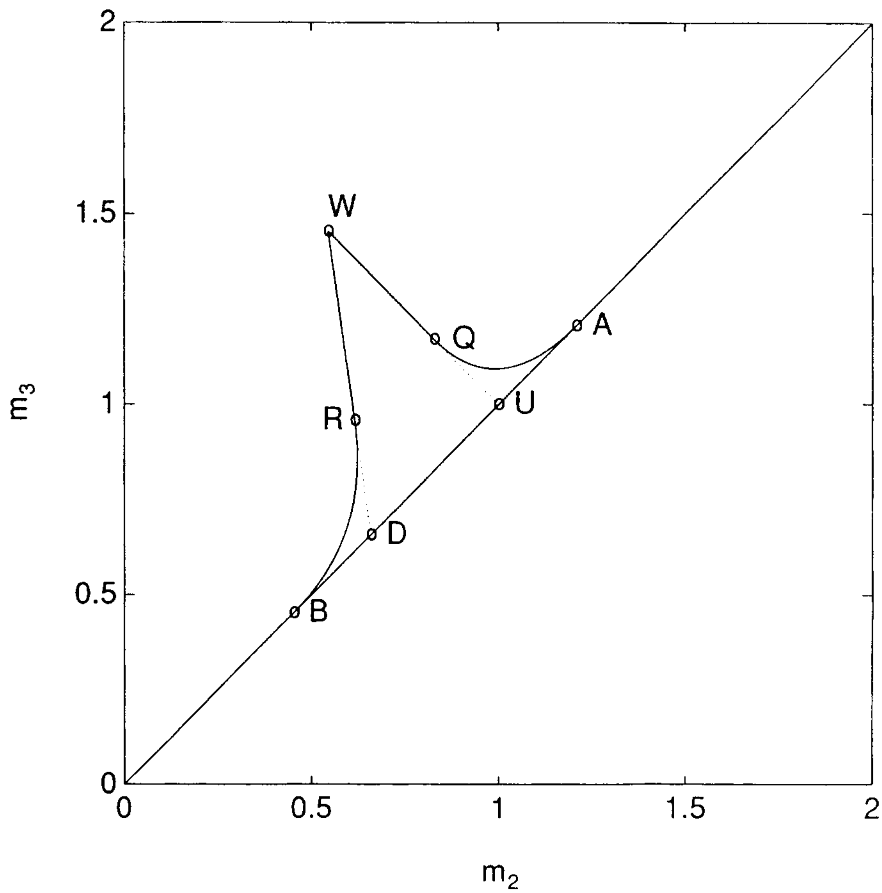

Figure 8. Region of complete separation in the $m_2 - m_3$ plane, in the case where $\Omega_F < K_D$. $K_A = 2.67$, $K_B = 1$, $K_D = 2.21$, $y_A^F = 0.5$, $y_B^F = 0.5$, $\Omega_F = 1.46$.