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Abhinandan Chowdhury* (chowdhury@savannahstate.edu), 12409 Largo Drive, Apt 40, Savannah, GA 31419. *Identification of the Effective Heat Conductivity Coefficient of Polydisperse Spherical Suspension by using Random Point Approximation*. Preliminary report.

The so-called Random Point Approximation (RPA) is applied to identifying the effective heat conductivity of a polydisperse spherical suspension. The RPA is based on truncated Volterra-Wiener Expansion (VWE) with basis function which is a random point function of perfect-disorder type. The VWE is applied consistently to derive the equations for the kernels. The contributions of the different kernels to the overall (effective) modulus are identified. An approximate model based on power-series expansion of the kernels with respect to the volume fraction is developed. It is argued that the contribution of the pure binary interaction (two-sphere solution) is negligible for moderately concentrated suspensions. The quadratures that give the contribution to the effective modulus are derived. The issue connected with the application of the fourth-order (one-sphere solution) are tackled, by evaluating some new kind of integrals. (Received January 29, 2019)