

1116-80-2232 **Bacim Alali*** (bacimalali@math.ksu.edu). *Nonlocal diffusion in composites.*

Convergence of a nonlocal diffusion model inside heterogeneous media in the limit of vanishing nonlocality is analyzed. The associated integral operator converges to its local counterpart in the limit of vanishing nonlocality, when the material diffusivity is sufficiently differentiable. However, when the material diffusivity has discontinuities, as in multiphase composites, the nonlocal diffusion operator diverges, in the local limit, at material interfaces. Nonlocal interface jump conditions are introduced which generalize local interface conditions. A nonlocal diffusion model for composite media that is locally consistent with classical diffusion in composites is presented. (Received September 22, 2015)