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**Scaling of Avrami Kinetics of Growing Anisotropic Grains**

SAMUEL GIDO, ASHOUTOSH PANDAY, University of Massachusetts, Amherst MA 01003 — The kinetics of phase transformations proceeding by nucleation and growth are commonly modeled with the Avrami equation. In its most general form, the Avrami equation is expressed as  $V(t) = 1 - \exp[-V_e(t)]$ , where  $V(t)$  and  $V_e(t)$  denote actual volume transformed and *extended* volume respectively, as a function of time  $t$ . The extended volume,  $V_e(t)$  is the imaginary volume of all the grains if they did not stop at impingement and grew into one another. We report an observation about the growth of anisotropic grains obtained through simulations. We have found that for both simultaneous and continuous nucleation of elliptical grains, of aspect ratio  $L$ , the extended volume is reduced by a factor of  $L^{1/2}$  in random orientation as compared to unidirectional orientation. In other words,  $V_e(t)_{random} = [V_e(t)_{unidirectional}] / L^{1/2}$ .

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