A Probabilistic Approach to Understanding Particle Collection in Flotation

Glenn Dobby and David Hatton
Woodgrove Technologies Inc
Toronto, Canada

Some flotation particle collection processes can be shown to follow the rules of first-order kinetics; coursing bubble recovery in column flotation is a good example. However, particle collection onto gas bubbles in high shear feed slurry aeration machines, such as Jameson, are not a classic first-order process. Mechanical flotation machines exhibit coursing bubble recovery, with associated first-order kinetics, in the more quiescent zones. However, the particle collection process in the shear zone of mechanical flotation machines is typically the dominant collection mechanism, and this process is better understood as a probabilistic process. The paper will review evidence for better understanding particle collection in mechanical cell shear zones, and will suggest a probabilistic approach to modelling.